AVIATION WEEK

A McGRAW-HILL PUBLICATION

JULY 5, 1948

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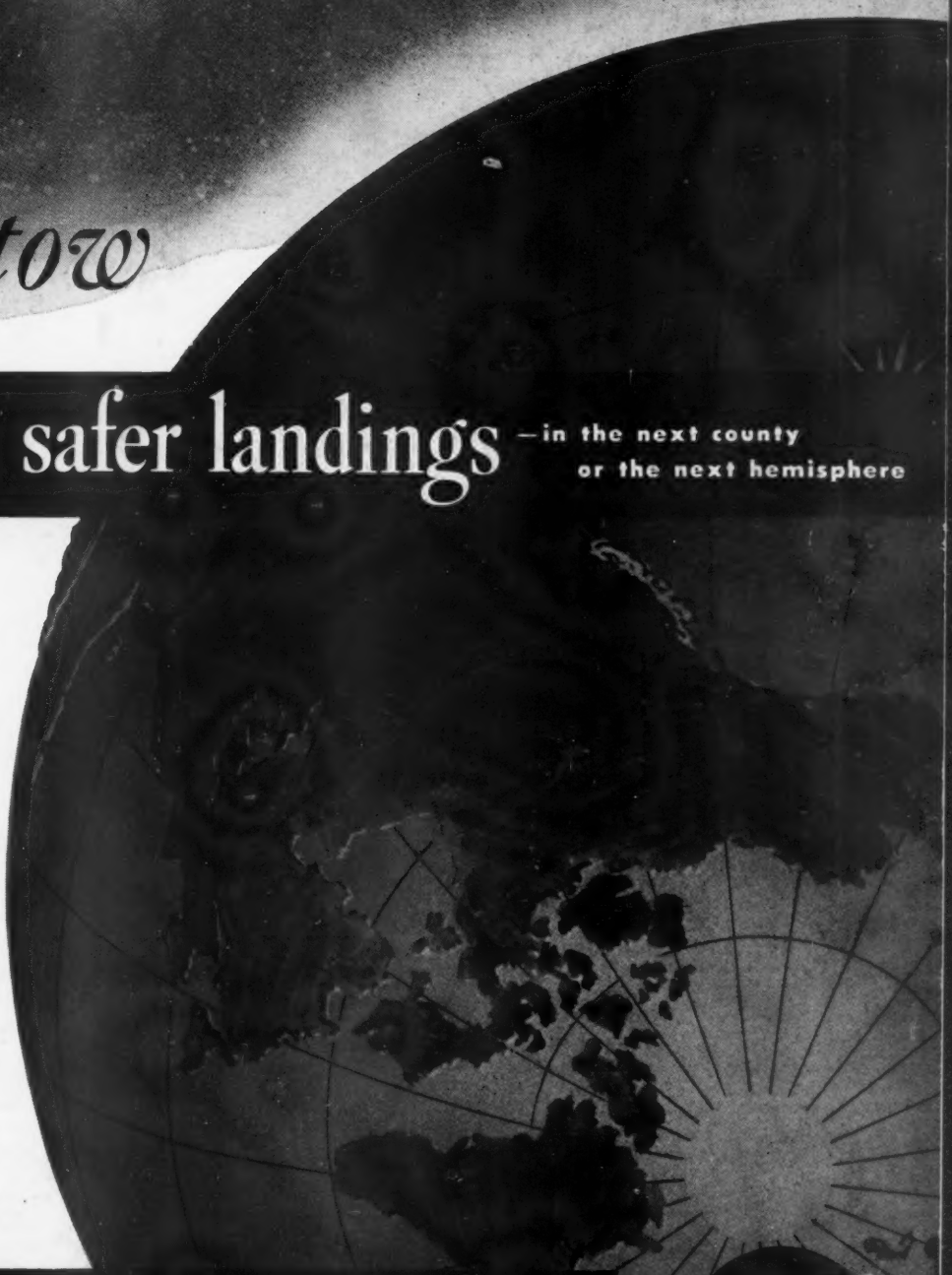
safer landings — in the next county or the next hemisphere



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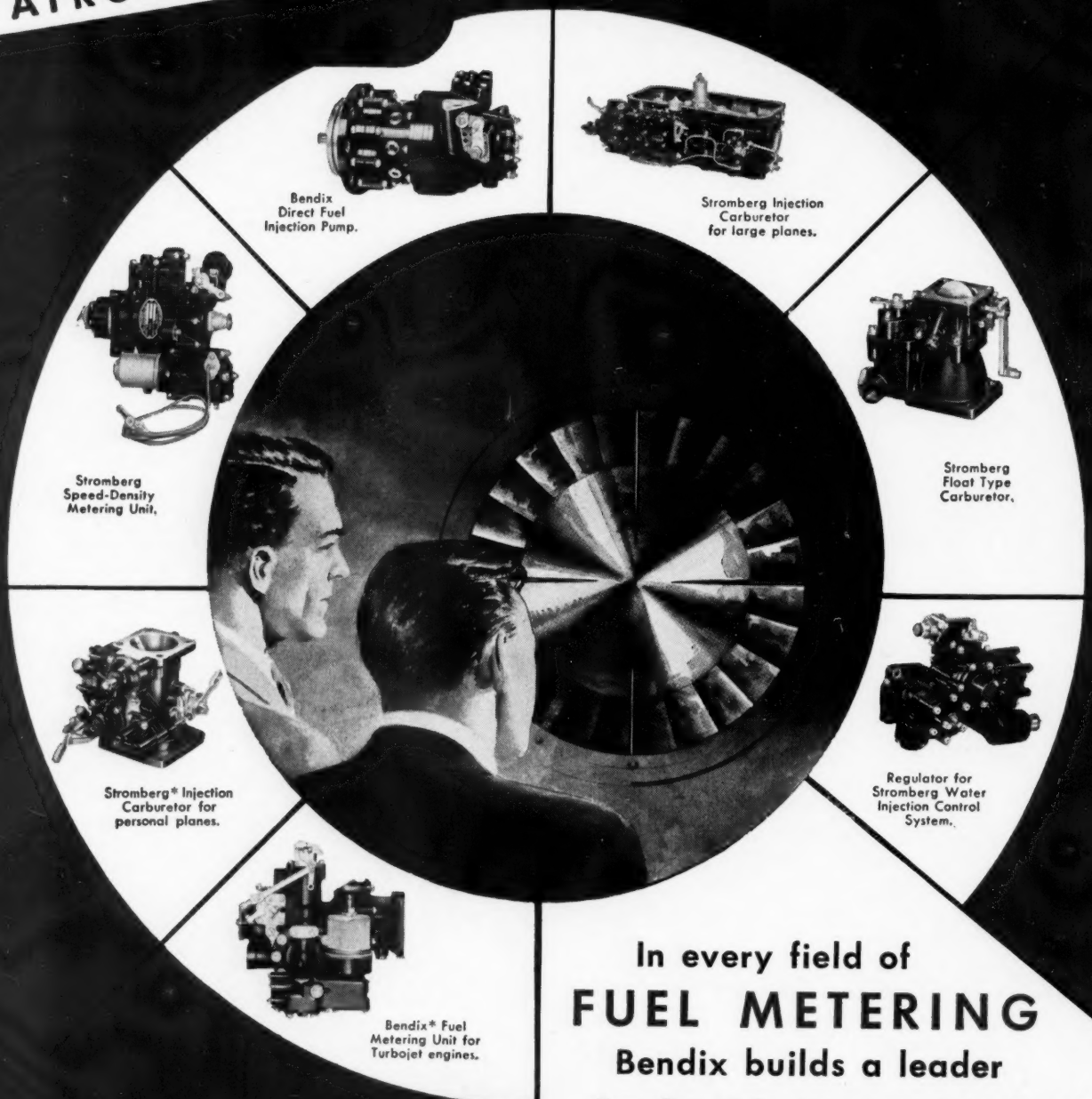
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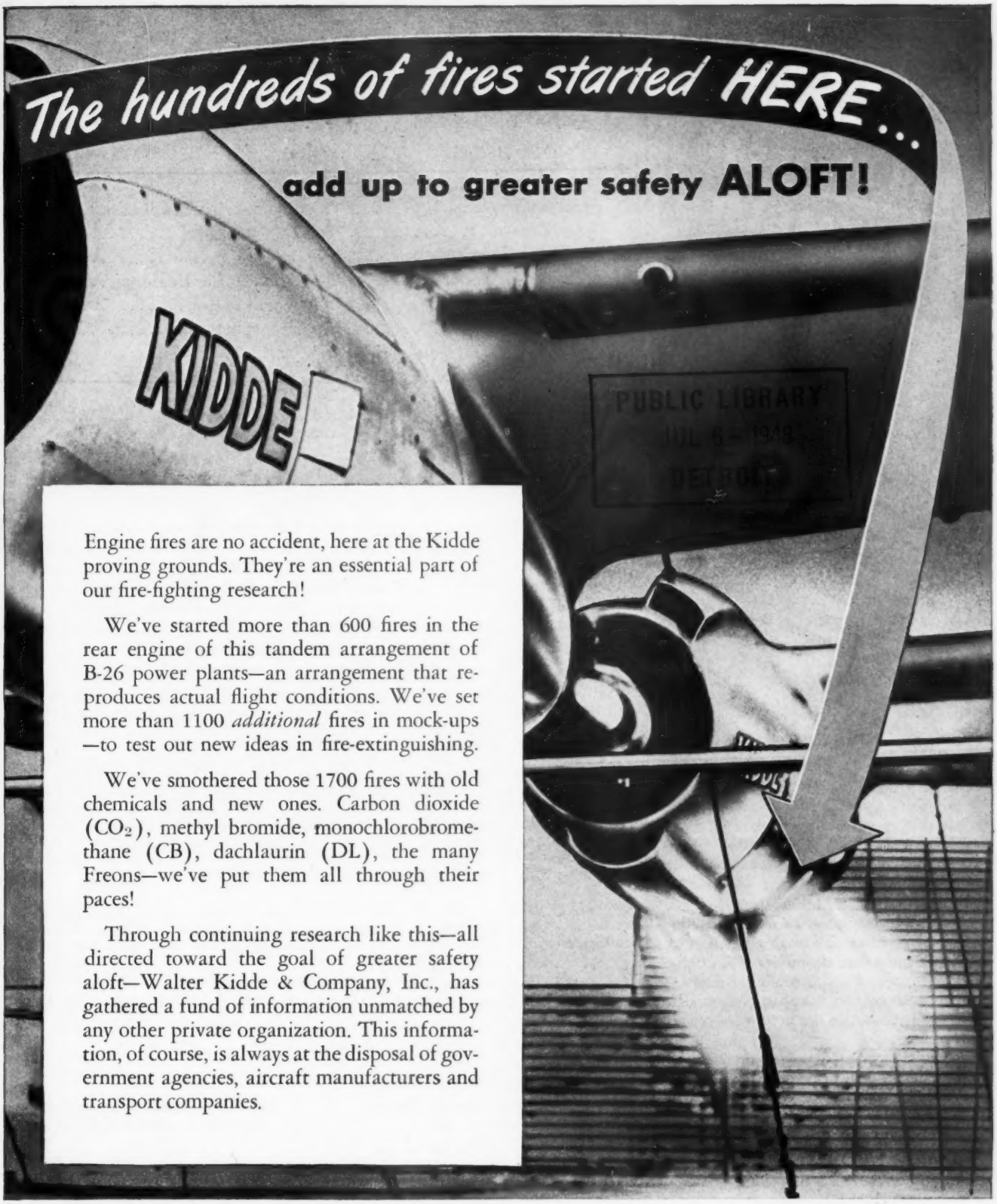

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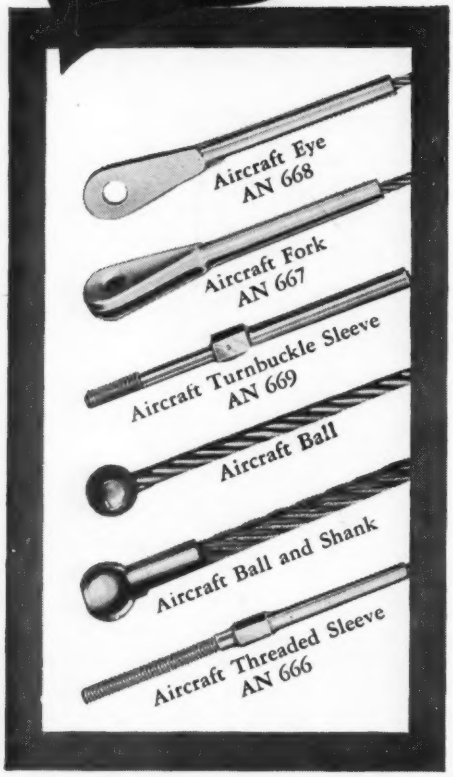
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AVIATION WEEK

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McGRAW-HILL PUBLISHING CO., Inc., James H. McGraw (1860-1948), Founder. Publishing Office, 99-129 N. Broadway, Albany, N. Y. Return postage guaranteed. Editorial and executive offices: 330 W. 42nd St., New York 18; 520 N. Michigan Ave., Chicago 11; 68 Post St., San Francisco 4; Aldwych House, London, W.C. 2; National Press Bldg., Washington 4, D. C.; Architects Bldg., 17th & Sansome Sts., Philadelphia 3; Hanna Bldg., Cleveland 15, 2980 Penobscot Bldg., Detroit 26; Continental Bldg., St. Louis 8; 1427 Statler Bldg., Boston 16; Rhodes-Haverty Bldg., Atlanta 3; 621 South Hope St., Los Angeles 14; 738-9 Oliver Bldg., Pittsburgh 22. JAMES H. McGRAW, Jr., President; CURTIS W. McGRAW, Vice-President and Treasurer; EUGENE DUFFIELD, Executive Assistant for Publications; NELSON BOND, Director of Advertising; JOSEPH A. GERARDI, Secretary; J. F. BLACKBURN, Jr., Director of Circulation . . . Aviation Week, 330 W. 42nd St., New York 18. Published weekly, price 50¢ a copy, 50¢ in Canada. Allow at least ten days for change of address. Address all communications about subscriptions to Director of Circulation, 330 W. 42nd St., New York 18, N. Y. Subscription rates—United States and possessions, $5 a year, $8 for 2 yr., $10 for 3 yr. Canada, $6 for 1 yr., $10 for 2 yr., $12 for 3 yr., payable in Canadian currency at par. Pan American countries, $10 for one yr., $16 for 2 yr., $20 for 3 yr. All other countries, $20 for 1 yr., $30 for 2 yr., $40 for 3 yr. Please indicate position and company connection on all subscription orders. Entered as second class matter July 16, 1947, at Post Office, Albany, N. Y., under Act of March 3, 1879. Volume 49, Number 1. Printed in U.S.A. Cable address "McGraw-Hill New York." Member A.B.C.

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Aviation Week is indexed in "Reader's Guide to Periodical Literature" and in "Industrial Arts Index." Following publications are combined with AVIATION WEEK: AVIATION, AVIATION NEWS, AIR TRANSPORT, AERONAUTICAL ENGINEERING and AIRCRAFT JOURNAL.

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Tech

The CASE of AIRLINE Z

Martin 2-0-2 Flies Its Route 25% Faster than Prewar Plane!

HERE ARE THE FIGURES!

FLIGHTS	Using Martin 2-0-2	Using Standard Prewar Plane
Boston to New York	45 min.	85 min.
New York to Philadelphia	37 min.	44 min.
Philadelphia to Baltimore	30 min.	40 min.
Baltimore to Washington, D. C.	20 min.	24 min.
Washington, D. C. to Elkins, West Va.	50 min.	74 min.
Elkins, West Va. to Parkersburg, West Va.	31 min.	43 min.
Parkersburg, West Va., to Cincinnati	51 min.	77 min.
Cincinnati to Indianapolis	40 min.	49 min.
Indianapolis to Chicago	52 min.	68 min.

*Did you miss "The Case of Airline X" or "The Case of Airline Y"? We'll be happy to send you copies.

MINUTES count when you're flying short-hop routes, because they're the places where profits leak away. That's why the Martin 2-0-2's time-gaining speed and much greater payload capacity are great news for airlines! This modern airliner offers high-speed luxury service to shorten schedules, attract more passengers and generate more traffic in cities with airports too small for most other airliners. The 2-0-2 can serve these smaller airports because it is CAA-approved to take off and land with maximum load in the shortest distance of any postwar airliner. It carries 36 passengers to the standard prewar twin-engine plane's 21. And its simplified loading, unloading and servicing means shorter stops between hops.

Airline Z is a typical example! Based on actual performance figures, a Martin 2-0-2, being 50% faster than pre-war planes, on this hypothetical route would save almost 2½ hours between Boston and Chicago. That is a minimum saving of 25% in route time. Thus, the 2-0-2 would be landing in Chicago while the prewar plane was only halfway between Parkersburg, West Va., and Cincinnati, Ohio. And these figures assume the *same* ground time for both planes. *Actually,* the Martin 2-0-2 would save still more time because it requires less time on the ground between landing and taking off! Just additional velvet on the 2-0-2.

Here's one more example of why the Martin 2-0-2 . . . *the world's top twin-engine* airliner . . . is the plane to put airlines *in the black!* For full details, write today to: The Glenn L. Martin Company, Baltimore 3, Maryland.

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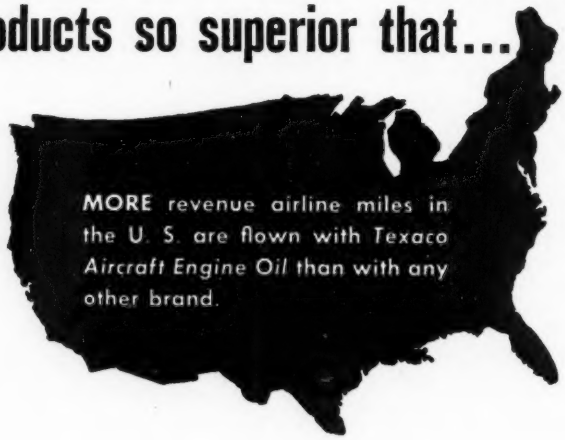

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If you feel that your engine overhauls are too frequent . . . that mechanical troubles are causing too many interruptions in service . . . let a Texaco Lubrication Engineer specializing in aviation, work with you. His wide practical experience is frequently helpful even beyond the field of lubrication.

Remember also, Texaco has a complete line of engine and airframe lubricants and aviation fuels . . . as well as a coast-to-coast set-up to assure ready availability of Texaco Aviation Products and Lubrication Engineering Service everywhere.

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FOR THE AVIATION INDUSTRY

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GI Flight Training Passes Peak

Gradual slackening of veterans' enrollments in aviation training will become more and more apparent in following weeks and months. Some schools already are cancelling their GI flight programs. Volume of flight training under the GI Bill of Rights has passed its peak, according to best estimates obtainable by AVIATION WEEK.

But the drop-off will not be nearly as abrupt and painful as it threatened to be a few weeks ago. A newly unified and loudly vocal civil aviation industry has seen to that with the powerful support of thousands of veteran flight trainees and former students.

35,000 Telegrams

Alert Washington representatives of aviation groups directly concerned quickly spotted a "sleeper" clause in the supplemental appropriation bill, which was being rammed through Congress in the hurried closing days.

Unaltered, it would have authorized Veterans Administration to prune out any veterans' training which VA regarded as "avocational and recreational." Top VA officials, not noted for their air-mindedness, had already described GI flight training repeatedly by use of these same two adjectives. They were ready to start pruning.

(Dossier of overt acts by VA regional offices against flight training is lengthy. Similar acts by top Washington VA officials have been fewer but more far-reaching.)

Official Washington today has a new respect for civil aviation at the grass roots level, as a result of the prompt action which followed discovery of the offending clause. During one night and early the next morning, before the bill was to be reported out on the House floor, representatives heard from the folks back home. Long distance telephone lines and telegraph wires from all parts of the U. S. crackled with the heat of veterans' messages to Congress.

It was reported that at least 35,000 telegrams came in to the representatives in Washington, urging drastic alteration of the dangerous clause.

New and Solid Prestige

Resulting Congressional action, after a rough-and-tumble battle actively supported by more thousands of telegrams to senators, gave new and solid prestige to flight training for veterans. The bill now provided that the veteran who wishes to take flight training for use in his present or intended business or occupation is specifically authorized to do so. Such training is exempted from the classification of "avocational and recreational."

But the Congressional action at the same time completely cut the ground from under any justification for purely "sport" flying, thereby writing its doom as of July 1.

Let Regions Do It

Just before the July 1 deadline for new contracts, A. H. Monk, director of VA's training facilities service for vocational rehabilitation and education, told AVIATION WEEK that no general policy statement had gone out to Regional VA offices on the letting of new aviation training contracts. He said responsibility for the contracts was with the regions. Asked about the policy of memorandum agreements between the regional offices and individual schools, where contracts could not be completed by July 1, Monk said VA preferred for the schools to have contracts. In some cases where work loads in the regional offices was too great or for some other reason contracts could not be completed, memorandum agreements could be used at discretion of the regional offices, pending completion. VA's last totals on the number of flight schools and veterans enrolled in them date back to Nov. 1, 1947 when there were 3616 schools and 118,400 enrolled.

No Intent To Circumvent

Washington VA officials have denied categorically any design to circumvent the intent of Congress expressed in the amendment exempting from the "avocational and recreational" status flight training for use in business. Flight operators who experience more than reasonable delay in some VA regional offices on their contracts may therefore get a hearing on their complaints by direct appeal to Washington, it is indicated.

Drop-Off to be Expected

A gradual decline in the number of veteran trainees has been foreseen, for several reasons not particularly connected with the VA's attitude toward flight training. Many observers feel that the strong stand taken by VA against flight training was "wasted breath" attacking a situation rapidly changing regardless of the VA attack.

The GI Bill of Rights provides all training must be completed within nine years after July 25, 1947. Veterans must have enrolled within five years after that date in any course they expect to take.

Only a limited number of the total veterans eligible for GI training are interested in aviation training. It is the belief of well qualified observers that a large percentage of this segment have already enrolled and that the enrollments from this point on will decline steadily, regardless of either artificial attacks or pump priming.

Best businessmen among flight school operators already are looking hard for new private student business and tightening their belts for a slack period.

NEWS DIGEST

DOMESTIC

Mark E. Nevils, former news bureau director for Eastern Air Lines, has become director of public relations for Curtiss-Wright Corp.

Sixteen F-80 jet fighters of the 56th Fighter Group will fly across the Atlantic to Germany on July 7 for a two week visit. The flight will be made from Selfridge Air Force Base, Mt. Clemens, Mich. via Labrador, Greenland, Iceland, and England to Furstenfeldbruck, Germany. The 36th Fighter Group from the Canal Zone will be transferred to Germany via surface transportation in August. The 86th Fighter Group (Republic F-47 Thunderbolts) is the current group in Germany.

Air Express shipments in domestic airline service in April gained 9.1 percent over the same month a year ago. A total of 332,821 shipments was handled compared to 304,905 in April, 1947.

Harmon Trophy, awarded annually prior to the war for the most outstanding aviator of the year of the award, will resume its significance following a New York Surrogate Court upholding the will of the late Clifford B. Harmon, who bequeathed $55,000 for the purpose at his death on June 25, 1945. A nephew and two nieces sought to set the will aside claiming the award an "act of caprice" rather than charity.

FOREIGN

Fairey Gyrodyne established a world helicopter speed record of 124.3 mph. over a three-kilometer course at maidenhead, England. The craft was piloted by Basil Arkell and eclipsed the former mark of 110.5 mph. held by an Air Force Sikorsky R-5 since June, 1946.

Sociedade Acoreana de Transportes Aereos has purchased two deHavilland Dove eight-passenger transports for use in inter-island service between the Azores and England. The planes will operate from Sao Miguel, Azores airport.

Czechoslovak Airlines will open regular service between Prague and Beirut, Lebanon initially on a weekly basis. Flights will leave Prague every Wednesday, stop overnight at Athens and arrive Beirut on Thursday. Fare will be $236 one-way.

U. S. Post Office Dept. announces the resumption of both air and surface mail to the state of Israel. Air mail is 25 cents a half-ounce, surface mail five cents first ounce and three cents each additional ounce. Maximum weight is four pounds, six ounces and letters may not contain merchandise.

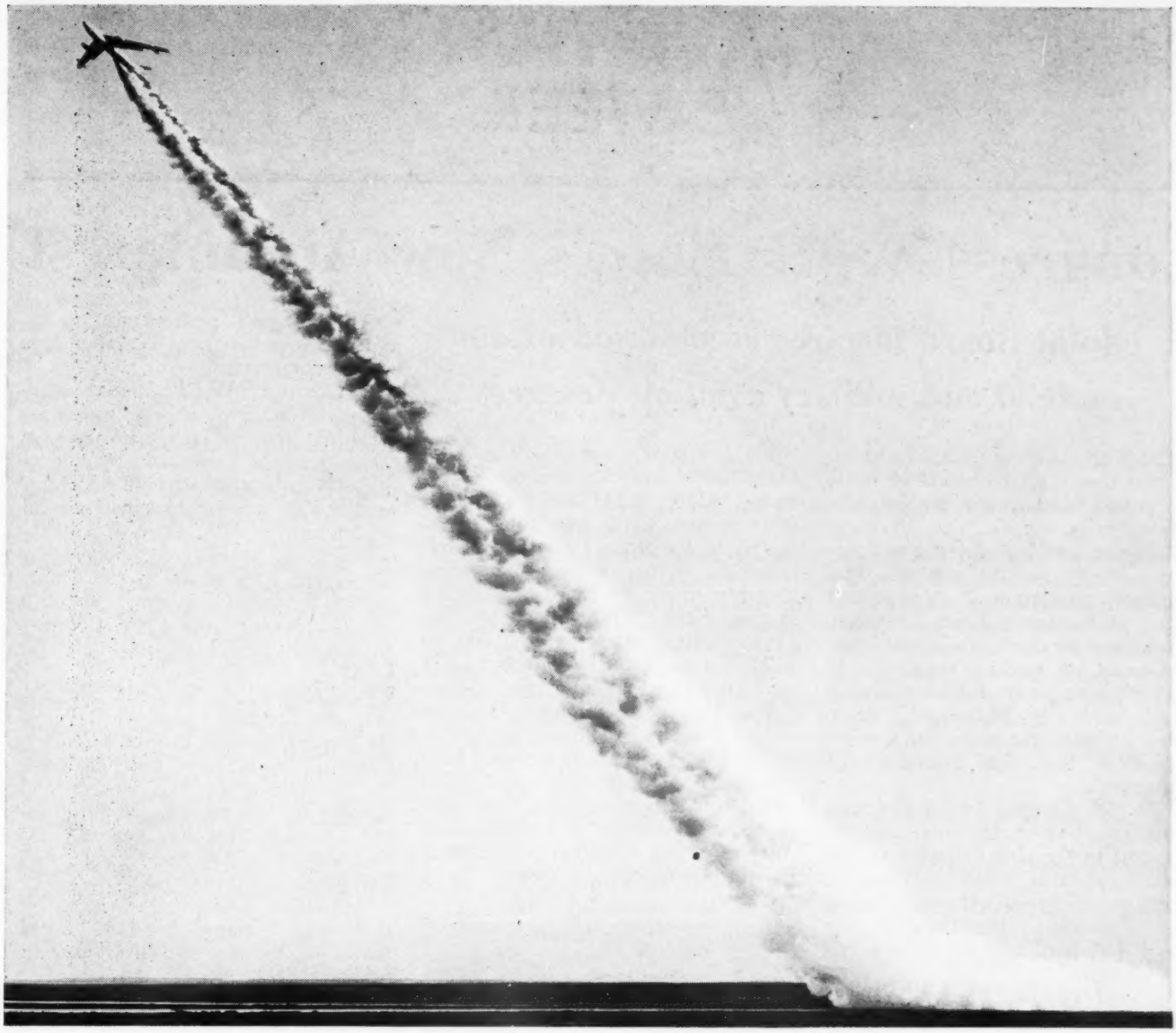

Photo shows Boeing XB-47 Stratojet, 12 seconds after standing start, on its first rocket-assisted takeoff.

Whoosh! It's America's "hottest" bomber!

This big bomber, leaping skyward with incredible climb, is the new Boeing XB-47 Stratojet—startling performer among the Air Force's new planes.

As large as a B-29, the Stratojet hurls itself into the air like a projectile. Eighteen built-in rocket units and six jet engines give it a maximum of 42,000 pounds thrust. In level flight it streaks along like a giant arrow, with ten tons of bombs.

The Stratojet's top speed and other performance data are carefully guarded secrets. But its swept-back wings and tail surfaces, trim fuselage and streamlined nacelles are a clear indication of the speeds for which it was designed.

That the Stratojet is flying today—as realization of the need for air defense reaches a peak—is a tribute to the foresight of the U. S. Air Force and to Boeing's advanced planning. It is the first large airplane of such radical design to be built—and it made its initial test flight only 18 months after first drawings were put on paper.

More than five months of Boeing tests have proved that, in the Stratojet, America has developed one of the world's most significant defense weapons.

For the Air Force, Boeing is building the B-50 Superfortress, XB-47 Stratojet, and C-97 Stratofreighter—for the Army, the L-15 Scout liaison plane —and for six major airlines, the twin-deck Boeing Stratocruiser.

AIR POWER
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BOEING

Vol. 49, No. 1

AVIATION WEEK

July 5, 1948

Congress' Work Shows New Air Interest

Joint Board inspires recognition of commercial and military aviation progress.

The 80th Congress made substantial progress toward establishment of stable and potent military and civilian aviation programs.

Congress' awakened interest and concern with commercial aviation coincided with recognition of its important role as an auxiliary military air power. For successfully driving this point home on Capitol hill, credit is largely due to the joint Congressional Aviation Policy Board, headed by Maine's GOP Sen. Owen Brewster, chairman, and California's GOP Rep. Carl Hinshaw, vice chairman.

The 80th Congress tossed numerous important, but controversial aviation problems to the next Congress for decision, and also failed to complete action on other non-controversial measures. Financially, the Congress was liberal with both national defense and civil aviation:

▶ **National Defense Funds.** The $3,191,911,000 budget approved for the Air Force, more than double the $1,259,272,000 provided for the 1948 fiscal year, will permit USAF to launch aircraft procurement geared to a 70-Group program. But Budget Bureau and Congressional economy-axing of general expense funds will leave USAF hard put to support an establishment for even a 66-group program. The $1,488,000,000 budget approved for Naval Aviation is almost double the $749,000,000 allowed Naval Aviation for the past fiscal year.

The $66,105,000 budget allowed National Advisory Committee for Aeronautics—$10,000,000 cash and $18,200,000 contract authorization is for new construction and equipment—set an all-time record.

In addition, in its closing hours, the Congress approved deficiency funds for major public works programs over the coming year for the Army-USAF ($76,000,000 cash, plus $75,000,000 contract authorization) and Navy ($51,337,200 cash, plus $50,000,000 contract authorization).

▶ **Civilian Aviation Funds.** The $149,370,000 budget given CAA was up $30,055,666 over the 1948 fiscal year budget ($119,314,334) and the $3,450,000 allowed CAB was the biggest budget in the Board's history. To increase the prestige of the two agencies, Congress earmarked funds to raise the salaries of the CAB chairman and the CAA administrator from $10,000 to $12,000 a year. CAB members salaries were upped to $11,500 a year.

Just before adjournment Congress rushed through a deficiency budget of $12,941,499 for CAA. It included $12,500,000 ($3,500,000 cash and $9,000,000 contract authorization) for new international airports at Fairbanks and Anchorage and $100,000 for planning on the air navigation system.

MEDAL FOR GRUMMAN

Leroy R. Grumman, chairman of the board of Grumman Aircraft Engineering Corp., had been awarded the 1948 Daniel Guggenheim medal for notable achievements in the advancement of aeronautics. Grumman was cited in particular for his designs of aircraft both for "Naval and peacetime use." Last year's recipient of the Guggenheim award was Major Lester D. Gardner.

The Congress' performance on national defense aviation legislation was less encouraging.

▶ **70-Group USAF.** Legislation authorizing a 70-Group Air Force program—including required supporting reserve components, a personnel strength of 502,000, an aircraft strength of 24,000 or 225,000 airframe tons and annual procurement of 5200 planes or 85,000,000 airframe pounds—was approved by the House, only to die in the Senate Armed Services Committee. Selective Service measure passed by Congress authorized a 502,000 strength for USAF.

▶ **Procurement.** Early in the first session, the Congress passed what is now the Armed Services Procurement Act, easing the requirements for competitive bid contracting by the services and opening the way for negotiation of aircraft contracts. But the Congress failed to complete action on several other vital procurement measures.

Legislation repealing provisions of the Vinson-Trammel Act that limited profits on military and naval aircraft contracts to 12 percent and requiring the Navy to construct 10 percent of its aircraft at the Philadelphia factory was approved by the House but successfully blocked in the Senate by Pennsylvania's Democratic Sen. Francis Myers who objected to relinquishment of naval plane manufacturing accomplished at Philadelphia.

▶ **Research and Development.** The bill authorizing the Secretary for Air to engage an unlimited number of scientific and professional advisors (at $50 a day, plus $10 subsistence), permitting research and development appropriations obligated in the year for which they are made to continue available for either re-obligation or expenditure over the next four years, and authorizing USAF to finance contractors' costs for testing facilities up to $100,000—was passed by the Senate, but this particular measure died in the House Armed Services Committee.

▶ **Civilian Program**—On the civilian aviation front, the Congress made several concrete accomplishments. One action vigorously protested in airline circles was the boost in air mail rates from five to six cents an ounce. Airline circles were also dismayed at the Con-

gress' failure to complete action on legislation authorizing the government to sustain research and development costs on commercial transport and cargo planes. A similar measure is expected to be quickly approved by the new Congress in January.

Among this Congress' accomplishments in the field of civilian aviation legislation:

Air parcel post service, long urged by airline circles, was authorized and is set for inauguration Sept. 1. Rates were set high, primarily to stave off railroad opposition promised if rates were set low enough to make air parcel post directly competitive with surface parcel post. In addition to increasing airline business, the air parcel post system is expected to wipe out Post Office deficits in air service operations which have roused Congressional protests.

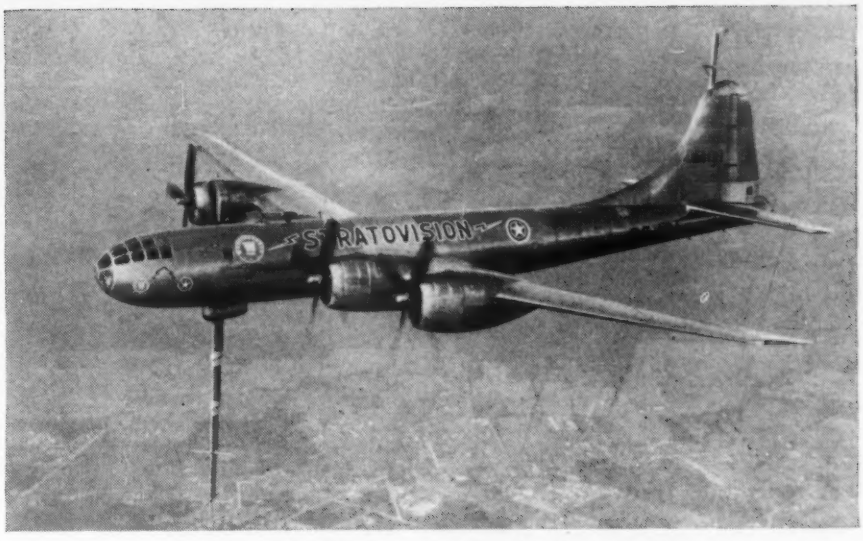
► **Navigation Program**—Legislation giving CAA sweeping authority to purchase, construct, and operate airports and air navigation facilities around the world and to train foreign nationals in their operation, was sent to the White House for Presidential signature. Appropriations will have to be obtained from Congress before projects can be undertaken. CAA is authorized to "make just and reasonable charges for aeronautical services (including but not limited to landing fees . . .)". Immediate result of the legislation will be to permit CAA to take over operation of military installations built abroad during the war.

Legislation aimed at furthering the domestic air navigation facilities program was also approved. It authorizes CAA to acquire (using condemnation powers, if necessary), improve, and operate facilities, both on and off the federal airways. CAA, now limited to operating facilities on the federal airways, is blocked in its plans to blanket the country with omnidirectional high-frequency radio range installations. USAF's request for veto power over proposed installations was rejected by Congress.

Congress also approved legislation authorizing the Coast Guard to maintain ocean stations and Loran stations to accommodate air commerce. Only ocean stations required as necessary to national defense could be established, however.

Maritime Commission was directed to draw up a research and development program of lighter-than-air rigid airships for commercial service and submit it to Congress under a measure on which preliminary Congressional action had already been completed.

CAA is authorized to train government and civilian personnel as control tower operators under a bill sent to the White House for signature.



STRATOVISION BROADCAST TEST

First commercial television program to be carried by the Stratovision system—the Republican National Convention—proved the success of the ground-air-ground relay system developed by engineers of Westinghouse and Glenn L. Martin. A B-29 converted at a cost of $100,000 cruised at 25,000 ft. over Pittsburgh and relayed the program as far as Zanesville in south central Ohio. By relaying the signal from high altitude, the effective distance coverage is increased two and a half times and power required is reduced to one-fiftieth. Flight view shows receiver antenna mounted atop fin and huge transmitter antenna mast projecting below nose. For commercial operation, Martin 2-0-2s would be used.

NAL-Delta Deal to Involve PCA?

Merger of two carriers is far from consummated and observers see other lines eventually in combine.

Merger with one or more other regional carriers in the eastern section of the United States has become a distinct possibility for the strike-crippled National Airlines.

Revelation late last month of top-level discussions between NAL and Delta Air Lines officials is no assurance that a merger of the two systems can be consummated in the immediate future. But the pot is boiling, and CAB has already been advised informally of the negotiations.

► **Delays Seen**—Details remain to be adjusted, followed by approval from the separate boards of directors of the two companies and subsequent endorsement by the respective stockholders. This procedure alone is time-consuming, and there remains the major hurdle of obtaining CAB approval. Eastern Air Lines would undoubtedly contest strongly a merger between National and Delta if the matter comes before CAB for approval. A culmination of board findings might require well over a year for a decision.

Rumors of a National merger have been current for several months, stimulated by the apparently inextricable strike situation involving NAL, the Air Line Pilots Association and the International Association of Machinists. A Presidential emergency fact-finding board is expected to make a report on the labor disputes early this month, but there is no indication that either G. T. Gaker, NAL president, or the union leaders will accept recommendations they deem unfavorable.

► **Deficits Continue**—Meanwhile, National is operating deeply in the red. During the first quarter of 1948, the company reported a $719,980 net loss. Normally, the first quarter is a highly-profitable period on NAL's links to Florida. Like National, Delta showed heavy deficits both for 1947 and the first quarter of this year.

While National has restored service to all points on its system, the effects of the pilot strike, which began Feb. 3, are still apparent, with passengers and revenue far below the same period last year. In April, 1948, NAL carried 7535 revenue passengers 5,098,000 revenue passenger miles with a 40 percent load factor. In April, 1947, the carrier flew 31,571 revenue passengers 16,637,000 revenue passenger miles with a 67 percent load factor.

► **PCA Position Eyed**—Authoritative sources believe that eventually Capital Airlines might be fused into the Na-

tional-Delta combination if the latter deal is effected. One reason attributed to the exclusion of PCA at this time is the involved nature of its capital structure and reports of a pending reorganization of its finances. Delta and National, on the other hand, have relatively simple capitalizations.

A three-way amalgamation of National, Delta and Capital would effectively blanket the same areas now served by Eastern as well as render strong support to Capital's routes from Chicago to the Eastern seaboard.

NACA Appoints New Members

Changes in the National Advisory Committee for Aeronautics include appointment of Dr. James Harold Doolittle and Dr. Detlev W. Bronk as additional members, and creation of the post of Director of the Research and Development Board as a permanent government chair on the Committee.

Jimmy Doolittle, who served as a Lieut. General and commander of the wartime 8th and 12th Air Forces, is vice president of Shell Union Oil Corp. and a pioneer engineering test pilot. He made the first completely "blind landing" and has received the Schneider and Thompson trophies and the Congressional Medal of Honor, the latter for his historic raid on Tokyo.

▶ **Program Broadened**—Dr. Bronk is Chairman of the National Research Council and a specialist in aeromedical research, indicating a broadening of the Committee's research program to include this new field. Bronk is Director of the Johnson Foundation for Medical Physics at the University of Pennsylvania and served during the war as Coordinator of Research in the Air Surgeon's Office of the Air Forces.

The establishment of the Research and Development Board as a permanent NACA membership changes Dr. Vannevar Bush from a "member from private life" to a government member.

GE Leases Plant

General Electric Co. has leased the former Wright Aeronautical engine plant at Lockland, Ohio for the production of the new J-47 (TG-190) turbojet engine, scheduled for installation in the North American F-86A swept-wing fighter and other new Air Force types.

The 700,000-sq. ft. facility will employ about 2000 people. Production is expected to get under way by the end of this year.

G. E. states the plant will enable the aircraft gas turbine division to triple turbojet engine production, now centered at Lynn, Mass.

Douglas Promises Cargo DC-6

Although no orders are in sight, company believes cargo field will develop fast enough to justify new plane.

Douglas Aircraft Co. will build a cargo version of the DC- 6.

The Douglas Airfreighter (DC-6A) will be designed to carry a 30,000 lb. payload on a 9-½ hour, one-stop transcontinental haul for a direct operational cost of 4.7 cents per ton mile. One major structural change from the DC-6 will be addition of five feet to the fuselage. Prototype is scheduled to fly next spring.

Following are the salient features of the DC-6A:

▶ **Performance:** Gross weight of 96,000 lb.; empty weight 48,440 lb.; maximum speed at 20,000 ft. 355 mph.; cruise at 20,000 ft. 304 mph.; sea level takeoff distance at 96,000 lb. gross, 5340 ft., at 5000 ft. above sea level, 7900 ft.; landing at 85,000 lb. and sea level, 5450 ft.; at 5000 ft. above sea level and 80,500 lb., 5950 ft.

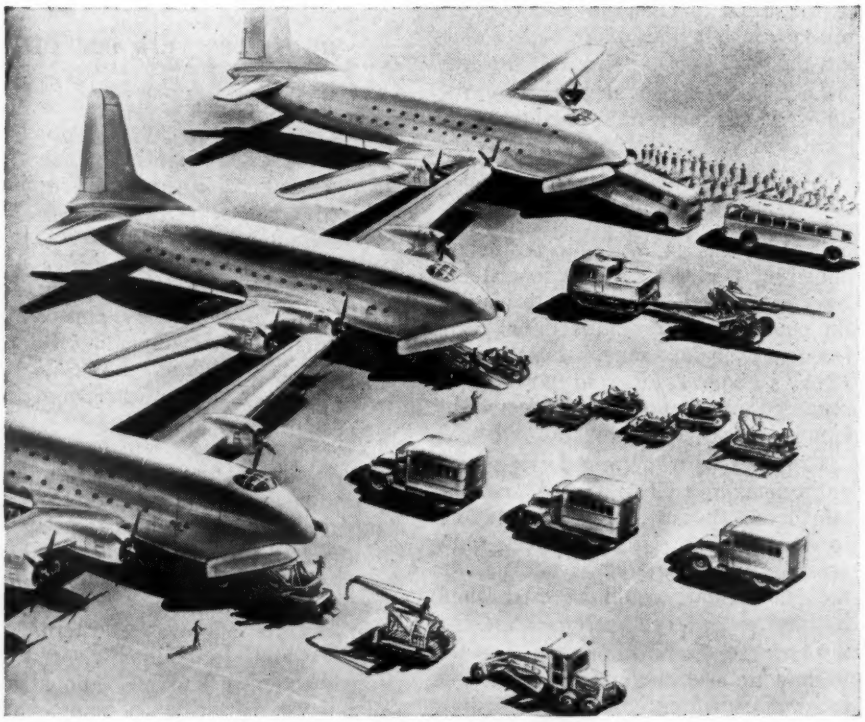
▶ **Cargo Facilities:** 5000 cubic ft. cargo space including 4375 cubic ft. in the main cargo compartment; wide cargo doors fore and aft allowing simultaneous loading and unloading; specially strengthened cargo compartment floor; cargo compartment pressurization and temperature control; and Fiberglas plus Fiberglas laminate insulation.

▶ **Price:** DC-6A will sell for about $900,000, slightly less than the passenger version.

▶ **Costs:** According to the Air Transport Association formula, the DC-6A will have a direct operating cost of 4.7 cents per ton mile (4.5 cents with zero headwind) for one-stop transcontinental service. For nonstop Chicago-West Coast service a 5.1 cent direct cost is indicated (4.9 cents at zero headwind). Douglas estimates the DC-6A will be able to do the work of two DC-4s.

In addition to the cargo interior, Douglas has designed a mail interior that can accommodate all equipment now used in a standard 60 ft. railway mail car. With passage of the air parcel post bill, Douglas interest in pushing the mail interior is more than theoretical.

▶ **Faith in Freight**—Donald Douglas made his decision to proceed with the



LARGEST DOUGLAS TRANSPORT

Artist's sketch of the Douglas C-124A which will go into production for the Air Force as a strategic transport shows the unusual clamshell nose-loading doors and the built-in nose ramp and electrical cargo hoists aft the wing. Designed for a 175,000 lb. gross the C-124-A is about two and a half times the size of the Douglas C-54. It will carry a payload of 50,000 lb. over a 2400-mile range. It is powered by four Pratt & Whitney Wasp Major engines with Hamilton Standard four-bladed propellers.

DC-6A Airfreighter project without any firm military or commercial orders. He is convinced that the future of air freight will be rosy and is willing to gamble on a chance to recoup some of his staggering DC-6 passenger airliner losses on the cargo version. Commercial sales of the DC-6 have virtually halted at 149 with an estimated 300 sales required to break even on the project. Douglas loss on the DC-6 project now stands at about $30,000,000.

Equipment financing appears to be the largest obstacles to DC-6A sales. Major non-scheduled airfreighters including Slick and the Flying Tiger Line have long been interested in a cargo version of the DC-6 for deluxe overnight coast to coast air freight service.

E. E. Wilson Elected McGraw-Hill Director

Eugene E. Wilson, aircraft industry leader and spokesman, has been elected a director of the McGraw-Hill Publishing Co.

During much of his career, Wilson, now 60, has served aircraft manufacturing companies in top executive capacities.

Retired vice chairman of United Aircraft Corp., he was president at times of three of its divisions – Hamilton Standard Propellers Corp., Sikorsky Aircraft Corp., and Chance Vought Corp.

Later he became president of United Aircraft, moving from there to the vice chairmanship.

An Annapolis graduate, he spent 25 years in the Navy, including the early period of Naval Aviation, before entering the aviation manufacturing field in 1930.

Wilson was president and is chairman of the Aircraft Industries Association. He is a staunch advocate of a strong national air policy, and wrote the book, "Air Power for Peace."

Dr. Jerome Hunsaker, leading aeronautical engineer, is also a McGraw-Hill director.

Track Gear Contract

Fairchild Engine and Airplane Corp. has been awarded a contract for the installation of 18 sets of track-type landing gear assemblies on the C-82 Packet cargo plane. The planes are now in service with the Ninth Air Force and will be flown to Hagerstown, Md., for the conversion. Fairchild will also deliver five extra sets of the landing gears as spares for the track-geared Packets.

Fairchild developed the Packet version of the gear into a completely retractable assembly.

GLOSTER METEOR VII—FASTEST TRAINER

Shown in flight, this Gloster Meteor VII, two-seat trainer adaptation of the Meteor IV, is on its way to prospective purchasers in Turkey, with stops en route in France, Greece and Italy. Possibly the fastest training plane yet evolved (it has top speed of 585 mph.), the VII is equipped with two Rolls-Royce Derwent engines. Craft has absolute ceiling of 48,500 ft. and rate of climb of 7900 ft./min. Gloster will try to sell the trainer to countries that need a craft for transitional training.

Crash Probers Cite CO_2 Danger

CAA recommends precautions in use of extinguishers as proof is sought that UAL pilots were asphyxiated.

Precautionary procedures in the use of carbon dioxide fire extinguishers were recommended last week by CAA. This was a result of flight tests conducted by Douglas Aircraft Co. and the CAA after crash of a United Air Lines DC-6 near Carmel, Pa. last month.

CAA advised that pilots use oxygen masks, depressurized aircraft cabins and begin standard smoke clearance procedures when carbon dioxide fire extinguishers are discharged in flight. Douglas Aircraft Co. recommended similar procedures last spring when the DC-6 returned to Airline Service after a six months grounding.

CAB investigators were still pressing an exhaustive study of evidence to determine whether the United DC-6 pilots were asphyxiated after discharging both banks of carbon dioxide fire extinguishers in the forward baggage compartment. This compartment is directly below the pilots seats.

Last radio messages from the United DC-6 indicated that the pilot suspected fire and discharged extinguishers in the forward baggage compartment. United President W. A. Patterson said there was no evidence of fire in the plane before it hit a high tension power line and transformer. CAB investigation regarding this point has not yet reached completion.

▶ **False Warnings**—Pilots of DC-6 and DC-4 transport have reported numerous false fire indications from detectors employing a photo-electric cell. CAA authorized airlines to disconnect these indicators at their discretion until Aug. 1 when improved detectors are expected to be available.

Excessive leakage of carbon dioxide into the cockpit of both the DC-6 and Lockheed Constellation is possible if precautionary procedures are not followed when discharging both banks of fire extinguishers. Discharge of a single bank is not dangerous, tests indicated. Flight and ground tests made by Douglas during the extensive DC-modifications last winter indicated a need for improved sealants in the baggage compartments. A tape type sealant is now used that will retain at least 25 percent of the carbon dioxide discharged into a compartment for two hours. This device is designated as meeting standard CAA requirements.

▶ **TWA Tests**—TWA encountered evidence of serious carbon dioxide leakage in its Constellations. On May 15 a TWA Constellation got fire warnings from the forward baggage compartment and pilots discharged both banks of carbon dioxide extinguishers. Pilots were nearly asphyxiated by the carbon dioxide leaking into the cockpit. An emergency landing was made at Chillicothe, Mo. airport. There was no evidence of fire in the baggage compartment.

Later TWA and CAA personnel made a test in another Constellation on

June 9 at Kansas City releasing both banks of extinguishers. Carbon dioxide nearly overcame the test crew before they were able to don oxygen masks and clear the cockpit of fumes. Principal effect of breathing carbon dioxide is to shut off normal supply of oxygen. Oxygen masks of the rebreather type now used on airlines will not forestall asphyxiation if considerable carbon dioxide has already been taken into the lungs. Demand type masks providing a direct flow of oxygen and expelling air already breathed are required.

Formal hearings into the United crash opened last week at Ashland, Pa. with technical hearings scheduled for several weeks later in New York.

Meanwhile cause of a series of engine fires aboard American Airlines DC-6s was revealed as a punctured diaphragm on the carburetor de-richment valves used with water injection on Pratt & Whitney R-2800 engines. The puncture allowed gas to leak into a combustile fuel-air mixture and to drip onto a generator.

All these fires were successfully controlled and emergency landings made without major damage. American has since plugged all vents in the derichment valves and diaphragm assembly pending use of water injection on the engines.

Bendix Strike

South Bend and Detroit plants refuse to accept new wage agreement.

Bendix Aviation Corp.'s largest plant, South Bend, Ind., and the Zenith Carburetor Division at Detroit went out on strike last week after negotiations on a new contract at first appeared to have been successful.

The effect of the strike on aircraft manufacturing (likely to be serious) was undetermined, and its duration (likely to be long) was unestimated. But these facts were clear:

• The company and the Bendix Council, the negotiating group representing the UAW-CIO locals in the five Bendix plants, began talks in April on the contract expiring June 26.

• On June 16, the company filed suit in Federal District Court of South Bend charging UAW Local 9 with a slow-down and seeking damages of $165,000. Company spokesmen say the alleged slowdown then ended.

• On June 26, the company and the Council at a meeting in New York agreed on a 13¢ an hour wage boost for all five plants, plus an additional ½ cent an hour for workers at South Bend and Detroit who have claimed "wage inequities." This agreement was subject to ratification by the union locals. South Bend and Detroit refused to ratify and walked out last week.

• At that same meeting, company and the Council agreed to extend the former contract to July 18 to allow time for formalizing the wage pact.

▶ **Two Sides**—At that point, the company's story and the union's story separate. The company understands that contract was extended. The union's international headquarters in New York say the extension agreement contained a ratification clause and that Detroit and South Bend did not ratify.

At issue in this part of the dispute is liability under the Taft-Hartley Act. If the company is correct in its belief that the contract has been extended, then it insists that the South Bend and Detroit locals are striking illegally. If no contract is in force for those plants, the picture is different.

This aspect of the strike was due for an airing at two separate meetings in the middle of last week. In New York, the International Executive Board of UAW was due to take up the Bendix strike situation at one of its regular meetings. In Detroit, the company and Bendix Council was due to sit down at a meeting originally set up to formalize the wage agreement. Now the negotiators had a new question to face.

Meanwhile, about 7300 employes are idle at South Bend and production has ceased on brakes, struts, fuel injection devices and other plane parts of which that plant customarily is one of the nation's largest suppliers. At Detroit, about 1500 workers are out.

Luscombe Skypal

A new entry in the low-price personal plane competition, the two-place, 65-hp. Luscombe Skypal will sell for $2095 flyway Dallas. Competitive with the lowest-priced two-placers, the Piper Vagabond and Taylorcraft Traveler both priced at $1995, the Skypal costs $200 less than any plane Luscombe has ever sold previously.

Besides obvious advantage of all-metal construction, the Skypal has dual controls, two doors, 65-hp. Continental engine, standard instruments, gray leatherette upholstery with rubber airfoam seats. L. H. P. Koltz, Luscombe president, said early calculations showed his company had already exceeded May shipments of two-placers in June, before the end of the month, and before announcement of the Skypal. Deliveries on the new plane start about July 15.

ICAO Concludes Geneva Meeting

The International Civil Aviation Organization has wound up its second Assembly meeting in Geneva after three intensive weeks of reviewing the entire field of world air transportation and increasing its membership to a total of 50 nations by the acceptance of Austria's application.

The final plenary session approved the Convention on international recognition of rights in aircraft. The Convention, which is designed to aid international airline operators in arranging and financing aircraft purchases, steps up the speed with which new equipment can be brought into service on the world's airlines. (See page 16).

Other actions taken at the Geneva assembly meeting:

• The Assembly recommended further study of Articles 33, 39 and 41 of the Convention on International Civil Aviation: to clarify Article 33, which deals with certificates of airworthiness and competency of airmen; to simplify article 39, which concerns the requirements of international standards; and to retain, reject or amend Article 41 which regulates application of standards of airworthiness to aircraft in service or due to go into service.

• Simplified the procedures which private aircraft must follow when crossing international borders were recommended by the economic commission. Freedom of entry would be accorded without advance notice except where the flight planned is over inaccessible terrain or through regions lacking proper air navigation facilities.

• The Assembly recommended that members of the Air Navigation Committee be selected from nominees of the 21 Council members, with no more than one being appointed from each nation. The present Air Navigation Committee of the Council will continue to function until the new setup goes into effect.

• The Assembly also considered the problems involved in levying charges for use of air navigation facilities and services supplied by various states, and directed the Council to probe into the economic aspect of airports and air navigation services for international civil aviation.

• Applications of Austria and Finland for ICAO membership were approved. Austria was accepted into the organization July 9, and brings ICAO member nations to 50. Final approval from the General Assembly of the United Nations has not been obtained yet to cover Finland.

North Pacific ICAO meets July 13.

FAMA to Idlewild

Flotea Aerea Mercante Argentina (FAMA) became the fourth airline to sign a contract with the Port of New York Authority for use of New York International Airport. Agreements were completed between the airport operators and the nonscheduled Argentine carrier covering its one weekly flight between Buenos Aires and New York.

FAMA is expected to establish regular scheduled flights between the two cities within the year, when new equipment now on order is delivered.

Meanwhile, authoritative sources at the Port Authority felt that the remainder of the foreign-flag carriers now at La Guardia Airport will have agreed to move to New York International by this week.

Only one that might remain at La Guardia is BOAC which, under an agreement between the U. S. and Britain, must operate at the same airport as Pan American.

AVIATION CALENDAR

June 30-July 11—National Soaring Contest, Elmira, N. Y.
July 2-9—Second National Air Tour Week, United Pilots and Mechanics Association.
July 4-5—Annual National Air Show, Port Columbus, Columbus, Ohio.
July 6-7—National Association of State Aviation Officials, Committee and Directors, Colorado Springs, Colo.
July 8-9—N. Y. State Aviation Council Semi-Annual Meeting, Mark Twain Hotel, Elmira, N. Y.
July 12—IATA administrative subcommittee, New York.
July 13—ICAO North Pacific regional meeting, Honolulu or Vancouver.
July 15-16—Institute of Aeronautical Sciences' annual summer meeting and dinner, Hotel Ambassador, Los Angeles.
July 16-24—Airport construction equipment display, American Road Builders Association, Soldiers Field, Chicago.
July 17-18—National Trading Day and All-Dixie Air Show, Chattanooga, Tenn.
July 19-31—International Sailplane contest, Samaden, Switzerland, open to U. S. contestants through National Aeronautic Association.
July 22—AIA Personal Aircraft Council Meeting, Detroit, Mich.
July 23, 24, 25—Midwest Soaring Contest, Toledo, Ohio.
July 24-Aug. 1—Southwestern soaring contest, Grand Prairie, Tex.
July 26-27—California Aviation Trades Assn. annual state convention, San Diego, Calif.
July 31-Aug. 8—International Air Exposition, New York International Airport (Idlewild), N. Y.
Aug. 18-20—Society of Automotive Engineers, West Cost meeting, St. Francis Hotel, San Francisco.
Aug. 24—ICAO African-Indian Ocean regional air navigation meeting, Seattle.
Aug. 26-27—International Wakefield Trophy Model Airplane Meet, Akron, Ohio.
Sept. 4-6—National Air Races, Cleveland.
Sept. 5-11—Seventh International Congress of Applied Mechanics, Imperial College of Science and Technology, South Kensington, London, England.
Sept. 7-12—SBAC aircraft show and display, Farnborough, England.
Sept. 9—IATA legal committee, Brussels.
Sept. 13—IATA executive committee, Brussels.

INDUSTRY OBSERVER

► **Convair Skate jet flying boat fighter will feature retractable chines to reduce air drag. Heavily armed, it will mount 20-mm. cannon plus belt-fed, internally mounted rocket launcher and will carry 1000-lb. bombs. Featuring a "butterfly" tail, the Skate is a 2-3 man long-range fighter intended for advanced island-based combat. Prototype will be flying by next spring provided powerful-enough turbojet engines are available.**

► Douglas will get an experimental contract from the Air Force to build one of its Mixmaster design military trainers. The Douglas trainer lost out to North American's T-28 in recent USAF design competition. Air Force is interested in the tail prop pusher type as a possible intermediate trainer for jet pilots because it accustoms them to flying without a propeller in the nose.

► **Experience of USAF with storage planes indicates that leakproof gas tanks, landing gears and wheels deteriorate most rapidly during storage. Evidence of skin metal corrosion has also been encountered.**

► Another evaluation for Air Force twin-engine trainers (T-29) is under way. In addition to the Martin 2-0-2 and Convair-Liner, the Air Force will look over the Beech Twin-Quad feederliner and the Burnelli Loadmaster.

► **Convair will probably get a Navy contract for 16 to 20 P5Ys, a giant turboprop-powered flying boat. The P5Y has a patrol bomber version and a transport model. Navy's initial interest will probably be in transports. The boats will be built at San Diego.**

► Air Secretary Symington recently confirmed persistent reports that Boeing's six jet XB-47 has outdistanced Lockheed F-80 fighters in flight tests at Muroc.

► **Automatic GCA which combines use of a radar talk-down with cockpit cross-pointer indications in a single system has been successfully flight tested in Los Angeles. Gilfillan Bros., largest GCA makers, developed the automatic GCA under contract from Watson Laboratory of the Signal Corps.**

► A. V. Roe's Athena, a turboprop powered trainer, made its first flight in England late in June. The plane, using an Armstrong Siddely Mamba turboprop, is the second British single engine plane of that type to fly. Boulton-Paul's Balliol also powered by a Mamba beat the Athena into the air by several weeks.

► **The 22 extra squadrons required for the Air Force 70-Group program will consist of the following: six rescue (216 planes); 12 liaison (192 planes); two target (18 planes); and one geodetic control squadron (16 planes).**

► Prototype of the Douglas C-124 will be a modified C-74. Douglas will also be able to use considerable C-74 tooling in its C-124A production line.

► **Army Ground Forces soon may make jet-assisted takeoff standard for liaison planes. Extensive testing of small JATO units for such small aircraft is in progress.**

► Flights of the TF-80C, Lockheed's two-seat trainer version of the F-80, were resumed last week after reworking of canopy latches, which failed on an early test flight. Configuration of the long streamlined bubble produced, at high speed, high lift forces which were augmented by internal stress of cockpit pressurization.

► **Navy's little-publicized high speed parachute experimental station at El Centro, Calif., just above the Mexican border, will test new canopy designs intended to reduce opening shock for pilots leaving fast high altitude jet aircraft. Tests also include designs of salvage parachutes for recovery of test missiles carrying costly instrumented warheads.**

► Prototype of the Miles Marathon, British feederliner, was destroyed in a crash during test flight. Two other Marathons are nearing completion. Crash occurred during a climb, shortly after take-off.

FINANCIAL

ICAO Acts on Airline Financing

International convention will pave way for equipment trust arrangements. Congressional action still to come.

Significant progress in facilitating the widespread utilization of equipment trusts as an instrument in airline financing is being made on diverse fronts.

In the international field, 14 leading air powers have signed a convention which would recognize the property rights of aircraft traversing national frontiers.

This draft mortgage convention, called "International Recognition of Rights in Aircraft," was developed by the Legal Committee of the International Civil Aviation Organization at the Brussels Conference in September, 1947.

▶**Adopted at Geneva**—Under the leadership of Russell B. Adams, chief U. S. delegate to the Assembly of ICAO which recently met in Geneva, this convention was adopted. It is expected that this agreement will be highly satisfactory to the U. S. Government and to airplane manufacturers and operators in this country.

The importance of this accomplishment is highlighted by the fact that for 22 years international lawyers have failed to reconcile conflicting national law on the subject. Basic difficulty is that many nations with legal systems based on Roman law do not have anything like the English concept of the chattel mortgage.

This has been a major bar to banks and aircraft manufacturers seeking a form of security for loans to plane purchasers which would rank as high as a first mortgage no matter where the location of the plane.

In many countries, under existing statutes, tax liens and attachments arising from the indebtedness of an operator for supplies and other kinds of claims may take priority over a mortgage.

▶**New Principle**—The new convention establishes the principle that property rights, including mortgages, constituted in accordance with the law of one contracting state shall be recognized in all other contracting states as having priority over all other claims on a plane or its operator. An exception is made for claims arising out of salvage operations or expenses incurred for action found indispensable to the preservation of the aircraft.

The value of this agreement, however, will be limited to those countries approving this convention. Definite limitations may be found in the lack of protection present in any seizure of registered aircraft in countries not signatory to this convention.

It is probable that under the leadership of the major air powers, however, this compact may be broadened to include most, if not all, of the countries along the international air routes.

The adoption of this convention was strongly recommended by the Congressional Air Policy Board.

▶**U. S. Laws**—Much remains to be done with our own laws to remove impediments to airline equipment trust financing. CAPB advanced a series of pertinent recommendations and sponsored remedial legislation. One bill provided for the recording of engines and spare parts. Another removed the liability for aircraft accidents on the part of trustee owners in certain states where such laws exist.

Both of these measures passed the Senate, but were still awaiting action in the House at adjournment.

The remaining CAPB recommendation for clarification of the legal question of ownership of mortgaged airline property in bankruptcy was not presented to the recent session of Congress. A preliminary survey disclosed that to enact such a provision would require a complete overhaul of co-related railroad legislation. This was too involved a procedure to accomplish at this time.

▶**Bankruptcy Changes**—To facilitate the necessary banking safeguards in credit arrangements, it is believed that revision of the Bankruptcy Act may be necessary, making it clear that the trustees obtain ownership of the airline equipment in the event of bankruptcy.

The removal of all obstacles making possible the widespread use of equipment trust financing would be of great help to the airlines as well as to the aircraft builders. It must be strongly emphasized, however, that no panacea would eventuate.

Fundamentally, the individual credit position of the borrowing airline will remain the key determination. Equipment trust financing would add greater flexibility to an airline's plane acquisition program. Moreover, it would be in a better position to take advantage of special market circumstances.

▶**Accessory Recording**—The recording of engines, spare parts and other major accessories can be expected to be beneficial in the use of other financing instruments, such as chattel mortgages and conditional sales contracts.

Recently, Trans-Caribbean Air Cargo Lines said it had accomplished the first piece of financing by which a commercial airliner was covered by an equipment mortgage. This is untrue. The claim attributed to New York banking circles that this financing is "without precedent in aviation history" is probably correct, but not in the sense intended.

▶**Trans-Caribbean Issue**—In this particular transaction, Trans-Caribbean sold $150,000 in airline equipment trust notes, secured by a Douglas DC-4. The issue carries an interest rate of 7 percent and is convertible into common stock at $2 per share.

The Trans-Carribean paper, underwritten by Gearhart and Co., presumably required considerable "sweetening," hence the high interest rate and unusual conversion privilege.

▶**Pan Am Financing**—The first and thus far only true equipment trust financing was accomplished by Pan American Airways in January, 1939. The company sold $2,500,000 in 4 percent equipment trust certificates to to financial institutions. The funds were applied toward the purchase of Boeing Clippers.

Pan American had an initial 30 percent equity in these planes which provided a wide margin of safety for the lenders. Provision was made for the serial maturity of these certificates over a five-year period. To maintain adequate protection, virtually all of Pan American's equipment was added as collateral to this loan.

▶**Awkward**—This was done in view of the continuous interchange of engines among the planes, but it proved very awkward for both the carrier and the trustee. The problem was resolved when Pan American sold the Boeing equipment prior to the maturity of the notes and retired the obligation.

More widely used in airline equipment financing have been chattel mortgages and straight loans containing a "negative" pledge clause. The latter is designed to safeguard the lenders' position by precluding the pledging of physical assets. In many instances, this has been found to be tenuous protection.

—Selig Altschul

ENGINEERING & PRODUCTION

Flat Rates

Pacific Airmotive latest to adopt policy of fixed fees on engine overhaul.

What could turn out to be a revolutionary development in the engine overhaul business, bringing with it greater production efficiency, reduced overhead and eventual lower prices to a wide variety of customers, is in its initial stages at Pacific Airmotive Corp.

It is a flat rate charge, a policy which is not new, nor limited to PAC, but which has probably never before been tried by an organization as large as PAC. What makes PAC's flat rate policy even more significant is the company's key position in the overhaul industry: its customers include airframe manufacturers, aircraft overhaul and maintenance firms, certificated airlines, cargo carriers and international airlines.

► **Catalogs Ready**—PAC expected to have ready last week the first of a series of flat rate catalogs that in the end will cover several hundred items and services. The first listing is on the Pratt & Whitney R-2000 and R-1830 engines, with a flat labor charge of $1250 on nonscheduled production or $1175 on a contract—regardless of engine model or kind of harness, magneto or carburetory.

Those are the basic rates. Although they would vary with a customer's own demands (some customers would want more or less service than covered by the rate), advantages to the customer in stabilized and lower prices and better budget control are obvious. PAC's manufacturing customers perhaps could pass on such savings.

► **Labor Utilization**—Advantages to PAC of a flat rate policy are chiefly in cutting down overhead. As company officials see the plan, they can wipe out the staggering amount of paper work involved in recording the time on each operation as an engine moves through one of the shops. Billing also would be simplified. Employees utilized for record-keeping could be turned to productive work. Time of about 15 people can be saved, it is hoped.

The flat rate policy would mean a tightening up in general on the production operations, giving better labor utilization and better scheduling.

While the flat rate plan is barely a month old—it began June 1—PAC sees those benefits ahead. To build up experience quickly on the new procedure, PAC obtained permission of existing customers to flat rate all engines now moving through its shops. Since June 1, more than 100 engines have been flat-rated. PAC officials say the plan is too new yet to have demonstrated its potentials.

► **Angled Toward Airlines**—PAC's flat rate policy is angled toward increasing airline business, and favorable interest has been shown by the half dozen or so lines approached. Southwest Airmotive Co., Dallas, which also has gone over to flat rate and is major competition for PAC in its area, is more active in the personal and executive plane field. Its catalog lists 250 rates and includes flat rates for engine, instrument and accessory exchanges, a minor point with PAC because of its heavy airline business.

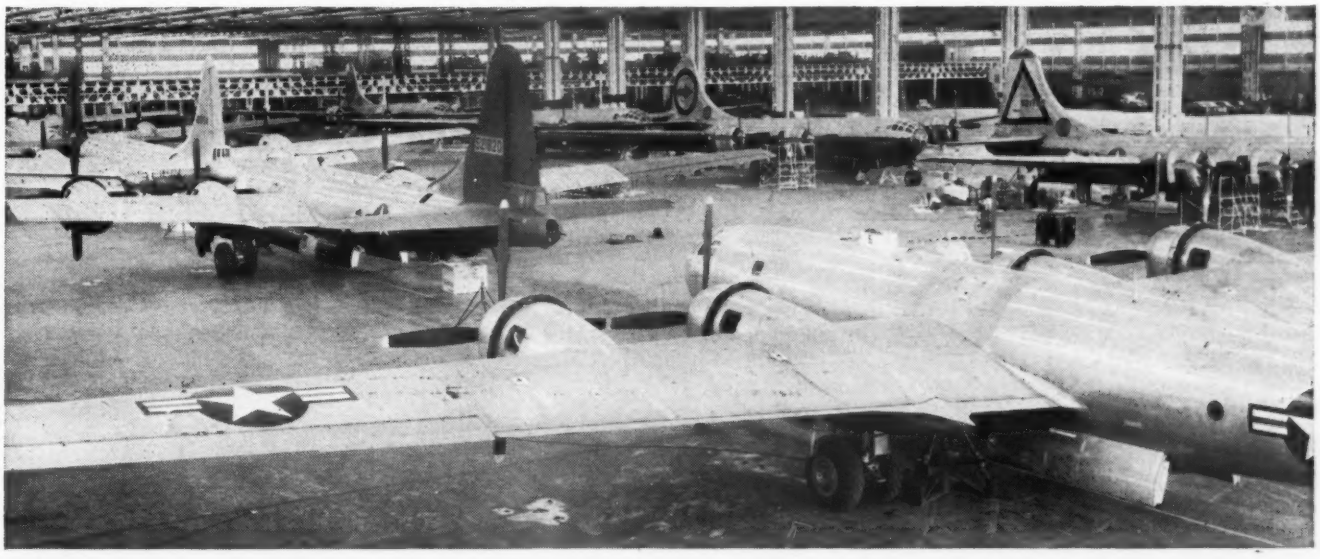
Boeing Re-Hiring Increasing

Boeing Airplane Co.'s hiring at Seattle for jobs formerly held by the striking Aero Mechanics Union has now reached a rate of 600 a week. Total workers on hourly paid jobs is about 3500. Half of these, the company claims, formerly belonged to the union. The union disputes this.

Meanwhile, the National Labor Relations Board last week was supposed to begin hearings on unfair labor practice charges against Boeing. A decision is expected "within two months." If found guilty, the company could appeal to the courts and if turned down it would be compelled to bargain with the union.

Hughes Eyes Kellett

Hughes Aircraft Co. was disclosed last week as a rival of Fairchild Engine & Airplane Corp. for the helicopter activities of Kellett Aircraft Corp. Fairchild previously entered a bid which is under advisement by court-appointed Kellett trustees. Plans for reorganizing are to be filed July 16 in U. S. District Court, Philadelphia.



BOEING MAKING FLYING TANKERS

B-29 modification lines at Boeing's Wichita plant contrast Superfortresses being modified as flying tankers for aerial refueling operations (foreground) and those being equipped for combat operations (with painted tail). Red tails and wing tips on combat models indicate they are earmarked for service in the Arctic. B-29 line in background shows planes fresh from storage pools. Boeing will use other plant space to tool up for production of a plane not yet specified by USAF.

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Personnel Changes At Weatherhead

Heyliger Church, vice president in charge of sales for the Weatherhead Co., has been advanced to executive head of foreign and domestic sales divisions. R. P. Gibson, formerly vice president in charge of the automotive sales division, has been appointed vice president in addition to general sales manager.

Weatherhead also announced three other staff changes: M. C. Peterson, formerly sales manager of the industrial hose division, has been appointed assistant general sales manager; John D. Baldwin has been appointed chief product engineer and Charles H. Crawley chief design engineer.

► **In other personnel actions:**

IT and T announced election of General William H. Harrison as president and a director of the corporation, effective Sept. 1.

Bristol Co. has appointed Edward F. Houston application engineer in the aircraft equipment division.

LGS Spring Clutch Corp., Curtiss-Wright subsidiary, has appointed Frank W. Yarline and Co. and Gregg and Spohn as Chicago and Cincinnati sales representatives respectively.

United Helicopters, Inc., has appointed Allen Lathrop as purchasing manager.

Goodyear Tire and Rubber Co. has named Edwin M. Eickman manager of the company's South American division.

Kennametal, Inc., has made Gerald Bogner engineer and company representative in the New York office.

Curtiss-Wright Corp. has appointed George M. Pryor controller of the airplane division at Columbus, Ohio. Edward H. Gamble was named to head the pilotless aircraft and research activities at C-W's airplane division.

Parker Appliance Co. appointed John W. Overbeke staff engineer for special projects.

General Electric Co. named Edward G. Gray works engineer of the company's laminated plastics plant in Coshocton, Ohio.

Luscombe Airplane Corp. has appointed Sydney Carter advertising and public relations manager.

Jack and Heintz Precision Industries, Inc., elected Frank R. Kohnstamm vice president at the monthly meeting of the board of directors.

Gordonay Products Co. appointed William J. Kelly head of engineering and chief pilot.

Elastic Stop Nut Corp. named D. E. Lally as assistant general sales manager.

Continental Motors Corp. named Albert Vandenberg service manager of its airplane engine division. Vandenberg has been co-owner for the past year of Hangar Service Co., which operates under contract with Continental Motors to service the company's plane engines flown to Muskegon for overhaul.

Pacific Airmotive Corp. appointed George I. Goodwin vice president in charge of engineering. He was formerly director of Research for the Wilson Foundry and Machine Co.

Planes for Saudi Arabia

Saudi Arabian government is reported to be interested in purchasing two C-54s and six C-47s.

During the past year, the Saudi-Arabians imported two new planes, 10 engines, quantities of assorted parts and accessories, and converted three C-47s to passenger use.

BRIEFING PRODUCTION NEWS

► **Pacific Airmotive Corp.,** Burbank, Calif., has received a contract for the overhaul and repair of engines, accessories, propellers and instruments of the Maui Flying Academy, Hawaii.

► **Hamilton Standard Propeller** division, United Aircraft Corp., now is delivering reversible pitch 15-ft. three-blade propellers to the Navy for installation on the Lockheed P2V Neptune search plane. The new propeller has hollow-steel blades equipped with internal electric de-icing, replacing the solid dural blades used earlier on the type.

► **Lear, Inc.,** Grand Rapids, Mich., has purchased Romec Pump Co., Elyria, Ohio, through a stock-exchange arrangement. Romec manufactures fuel, water, injection, hydraulic and air pumps and valves and will continue these activities as a Lear division. Joseph H. Lyons, Romec president, becomes vice president of Lear and manager of the Romec Division.

► **B. F. Goodrich Co.** has opened its multi-million dollar research center at Brecksville, Ohio—between Akron and Cleveland. The facilities include six buildings on the 261-acre site completely equipped with scientific tools and equipment.

► **Kaman Aircraft Corp.** has expanded its flight test section at Bradley Field, Windsor Locks, Conn., by the addition of James F. McAvoy, jr., former Navy pilot. Kaman is engaged in development of the K-190 helicopter including an experimental contract from the Navy for design data, construction, tests, stress analysis and engineering report covering the rotor control system.

► **B. H. Aircraft Co., Inc.,** has moved into its new building in Farmingdale, L. I., N. Y. The company is a source for precision-made aircraft components, serving many leading engine and propeller manufacturers.

► **Aviometer Corp.,** New York City, has been reorganized as the Aviometer Division of Roanwell Corp. and will continue its manufacture of aviation, radio, television, rail and marine industry terminal communications equipment.

► **Steward-Davis,** Gardena, Calif., has appointed Willis Air Service, Teterboro Air Terminal, N. J., and Westcoast Aircraft Sales and Service, Boeing Field, Seattle, as distributors of S-D Pratt & Whitney R-1830-92 converted engines.

► **Federal Tool and Mfg. Co.,** Minneapolis, Minn., has moved into its new plant at 3600 Alabama Ave., Minneapolis. The company manufactures short run stampings.

► **Manning, Maxwell and Moore, Inc.,** New York City, has acquired the hydraulics division of the Airex Manufacturing Co. and will develop industrial applications for Airex Hydraulics products in addition to the present hydraulic line of relief valves, filters, and pneumatic pressure valves for the aircraft industry.

► **Glenn L. Martin Co.** has developed a new automobile brake design which has been licensed to the U. S. Rubber Co. for manufacture. The brake uses 50 percent fewer parts than the conventional hydraulic brake yet is claimed to possess more positive action, greater braking surface and other advantages.

► **Curtiss-Wright-Columbus** has received its third order for 1000 hydraulic automobile lifts from the Joyce-Cridland Co. of Dayton, Ohio. Production will begin immediately with complete fabrication, assembly and painting of the hoists done at the plant. The lifts are shipped direct to filling stations and garages around the country.

► **Thompson Aircraft Products Co.,** Cleveland, is looking for a new plant for the manufacture of gas turbine blades and other jet engine parts. A foundry at Newark, Ohio, is being considered. This is larger than the present Thompson plant in Euclid, Ohio.

► **Continental Motors Corp.,** shipments of engines in May were the highest in a year and exceeded average shipments during the preceding 11 months by 82 percent. June schedules called for a 15 percent increase over May.

► **North American Aviation, Inc.,** has expanded its foundry to include an aluminum casting facility. The move will shorten the lead time and permit close control of specialized aluminum casting.

► **Northrop Aircraft, Inc.,** has initiated a ground crew service training program under which about 80 enlisted men and civilian employes will be trained in the service, maintenance and repair of the B-35 and B-49 Flying Wing bombers. The training program requires about five weeks and will be divided between Hawthorne, Calif., and Muroc Air Force Base, Calif.

The NEW Marquette Model 3V Wiper

This new windshield wiper incorporates every feature that is desirable and practical, based on thousands of installations on military, naval and commercial aircraft. It is the result of more than ten years of experience in this highly specialized field.

Blades are synchronized at all times. • Obstruction in path of blade will not stall it. Blades may wipe in same or opposed direction. • Blades are parked and locked when wiper is not in use. • Universal drive arm and tie rod require minimum stock of parts. • Wiper blades are easily replaced. • Pressure is removed from system when not in operation. • Motor unit may be located at any position in the airplane. Stroke on each window can be varied. • Hydraulic tubing eliminates linkage control and provides additional space for mounting other instruments. • Motor unit and window units are universal, providing maximum interchangeability of parts. • Constant torque values through entire stroke. • Uniform stroke at all speeds. Simplicity of design, resulting in lower first cost and reduced maintenance expense.

The Marquette METAL PRODUCTS CO.

CLEVELAND 10, OHIO

SUBSIDIARY OF CURTISS-WRIGHT CORPORATION

Manufacturers of HYDRAULIC, ELECTRIC AND AIR PRESSURE WINDSHIELD WIPERS
HYDRAULIC GOVERNORS FOR DIESEL ENGINES • ROLLER BEARING TEXTILE SPINDLES
FUEL OIL PUMPS • AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES

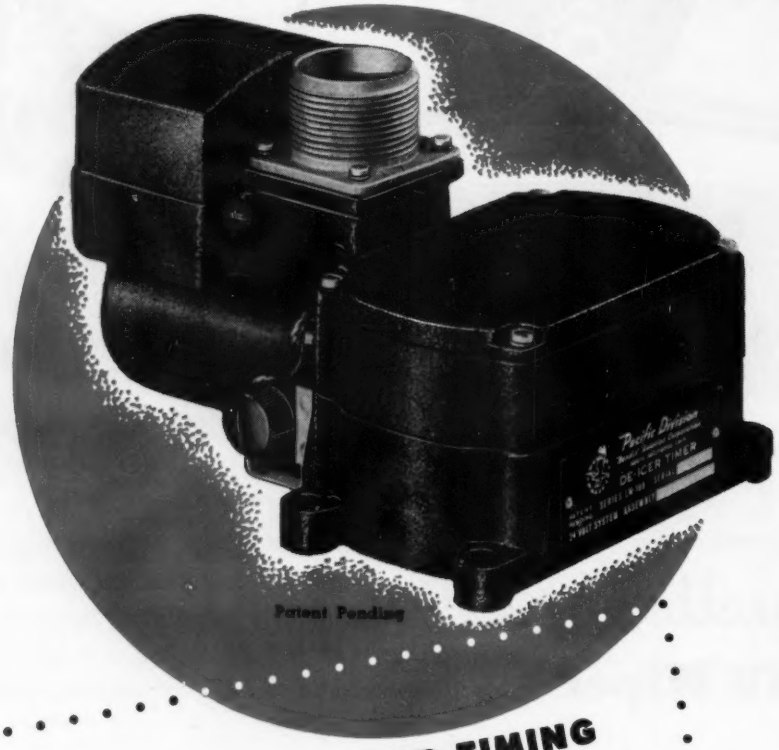
ELECTRICAL DEVELOPMENT

With de-icing equipment now generally regarded as regular flight equipment rather than as emergency equipment development work has rapidly progressed to make these systems more efficient both from the operational and service standpoints.

Electrical timing is an important factor in these systems In progressively energizing relays which control the flow of heavy currents through heating elements on the leading edge of the propeller blades it is most desirable that each new circuit be energized instantaneously as the last circuit is broken. Up to this time de-icer timers have either been of the multiple cam-adjustable contact type or of the commutator type, both requiring a definite "off" period between each cycle. This causes undue load fluctuations on the generating system and wastes available generating capacity.

A new sequence timer has been developed by Pacific Division, Bendix Aviation Corporation, which not only eliminates all adjustments but provides instantaneous switching which eliminates the "off" period, thus providing up to ten percent more heat from a given generator load.

The constant speed motor, through the gear reduction, operates a cam shaft at four times the speed of the distributor switch shaft. A single pole, double throw snap switch operated by the cam shaft is closed for 180° and open for 180° of each revolution. Each leg of this double throw switch feeds one deck of a dual four-position distributor switch. This switch is so designed that the top rotor is continuously in contact with and energizing circuit No. 1, as the bottom rotor is being switched from circuit No. 8 to circuit No. 2. The snap switch now operates, simultaneously turning off circuit one and energizing number two. The bottom rotor is now in contact with circuit No. 2, while the top rotor is switched from cricuit No. 1 to circuit No. 3, etc. The snap switch is operating at four times the speed of the distributor switch, thus all the switching is done in the snap switch. The distributor switches merely set up in advance the correct electrical path to the next circuit to be energized.



SEQUENCE DE-ICER TIMING WITHOUT "OFF" PERIODS

THIS NEW electrical timer now in quantity production at Bendix-Pacific eliminates the "off" periods in sequence timing and makes up to 10% more heat available for a given maximum generator load when used as a de-icer timer

Utilizing a temperature compensated motor, constant speed is obtained without the use of a governor, while a new type switching mechanism permits any even number of circuits to be energized progressively without introducing an "off" period between successive circuits. There are no adjustments. The motor is radio noise free and the entire unit is in an explosion proof housing.

Because of its extreme flexibility the timer can be supplied for numerous timing sequences. Bendix-Pacific engineers are available to discuss your application requirements.

Pacific Division
Bendix Aviation Corporation
NORTH HOLLYWOOD, CALIF.

PRODUCT OF Bendix AVIATION CORPORATION

Eastern Sales Office: 475 Fifth Ave., New York 17 • Canadian Distrib.: Aviation Electric Ltd., Montreal

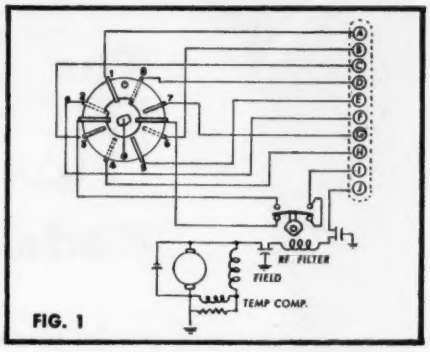


FIG. 1

In the case of propeller de-icing it is often desirable to have two rates of timing for different de-icing conditions. A standby timer also is desirable. By use of the arrangements shown in figure 2, identical timers can provide two different operating speeds and the failure of either timer will not render the other inoperative as it is the case if a two speed motor were used in one timer

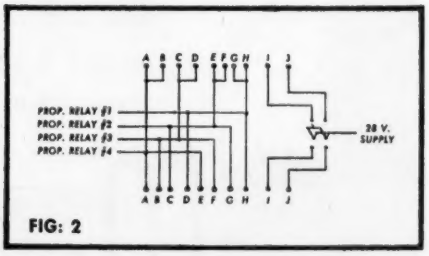


FIG: 2

Shown are two eight-circut 15 second timers wired so that if the first timer is operating, each of the four propellers is energized 15 seconds out of each 60 seconds, while if the second timer is energized each propeller will be energized 30 seconds out of every 120 seconds.

(Advertisement)

Track Gear Promises High Utility

New C-82 installation, developed by Fairchild and Firestone, features safety, improved braking, and wider spread of load.

By Alexander McSurely

New interest in the utility of the track (caterpillar) landing gear as a sturdy undercarriage for large airplanes, has been created by recent demonstrations of the latest version of the gear on the hefty 25-ton Fairchild C-82 military transport and cargo plane.

The new installation—a joint development of Fairchild and Firestone Tire & Rubber Co.—has come a long way from experimental track gears under test in England and in this country since prior to World War II.

▶ **Track's Features**—Advantages of the track gear, which offset for big airplanes the complexities and extra cost, are cited to be:

- Spreading the load over a wider runway surface at contact, so that it is not concentrated in one, two or four spots, as is the case with the wheel gears, even when dual or quadruple wheel installations are used.
- Compactness, permitting retraction into a smaller wheel well, in wing, nacelle, or nose.
- Virtual elimination of ground looping, blowouts and punctures, and bounce after a hot landing.
- More efficient braking because of larger ground contact area, better heat dissipation.
- Less wear on belt than on tire, since it runs cooler, and because of low unit ground pressure on belt in landing, compared to tire.

▶ **Minimizes Sinking**—Relatively wide spreading of the load over the track surface makes it possible for planes equipped with this gear to operate from sand, snow, dirt, and sod, sinking less than one-third as much as conventional wheel gear planes of the same gross weight, tests indicate.

This, plus the obvious advantage that the gear is less vulnerable to gunfire than are tires, are reasons why the Air Force has shown a continuing interest in the gear since early in World War II.

▶ **First Gear**—History of the track gear goes back to a Westland Lysander plane for which Dowty Equipment Co., Ltd. built the first gear of this type, and which used it successfully before World War II in England.

Shortly after, the Dowty Equipment Co., an American affiliated organization, and Firestone, began work on experimental contracts with the Air Force at Wright Field to develop basically similar gears. (The American Dowty Company later changed its name to Hub Industries, Inc.)

▶ **U. S. Applications**—The American-built track gears were installed and flight-tested on a twin-engine Douglas A-20 light bomber, Curtiss P-40 fighter, and on a Fairchild PT-26 primary trainer.

While the A-20 is a 10-ton gross weight craft, this was still not a complete test of the gear's ability to handle big plane loads.

Firestone and Fairchild engineers see no reason why the track gears cannot be used on planes as large as the Consolidated Vultee C-99 and B-36 or even larger.

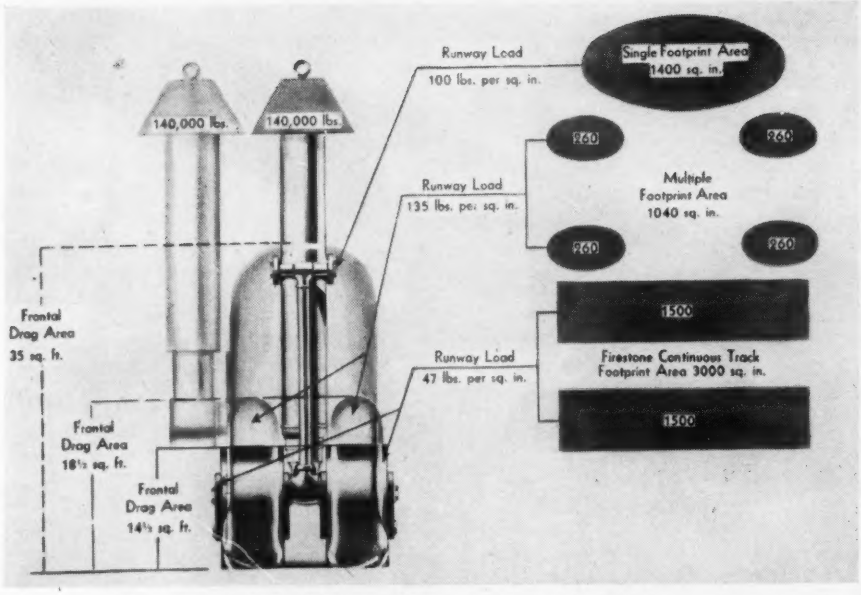
The C-82 installation is perhaps the first which has practical military usefulness in its present form, and it would not be any great surprise to see a squadron, or perhaps more, of the C-82s and their successors the C-119s, fitted with the track gears because of the greater versatility of landing area which it makes possible.

▶ **Construction Details**—Basically, each track gear is made up of a combination of bogey rollers interconnected and fitted inside an endless rubber belt.

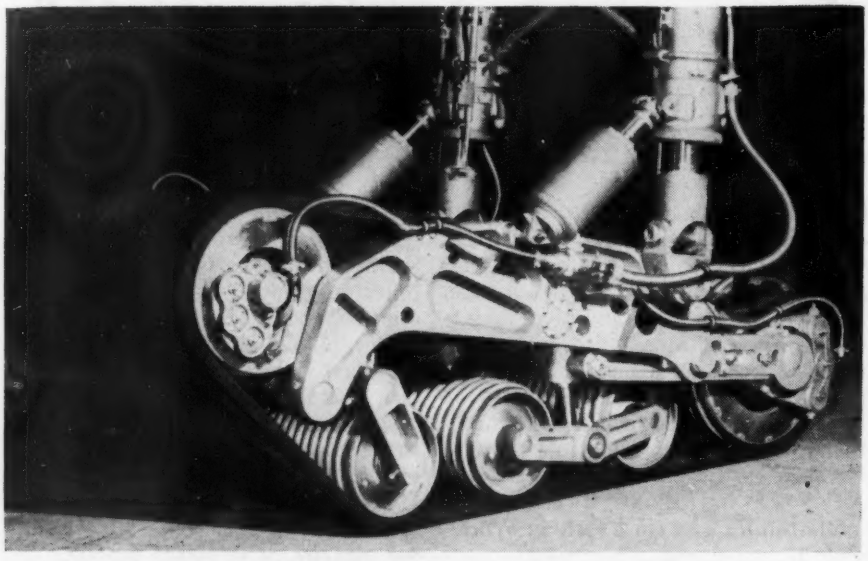
Grooves on the bogeys fit into the grooves on the inner surface of the rubber belt. Outside surface of the belt is heavy tread material reinforced with wire cord plies to provide a tough surface for the plane's landing.

The C-82 gear is a refinement of earlier track gears in several ways. It has a more extensive system of articulation which permits all of the spring units to be an integrated part of the entire shock absorber system and at the same time to provide belt tension under all conditions. Belt tension varies in proportion to the load on the front spring units, whereas the A-20 gear belt tension varied in proportion to vertical ground loads.

Spring units include coiled, ring, air springs, etc., which are actually snub-



This comparison of aircraft landing gear shows factors of frontal drag area; runway load pressure; print area of single, and multiple tires and continuous tracks.



Closeup of main track gear on C-82 Packet shows wide belt tread and grooved bogey wheels.

Wide "footprint" of track-type nose gear on Packet is evidenced here after turf-landing.

bers and also shock absorber units.

▶ **Retraction, Braking**—The C-82 track gear is the first tricycle and first retractable installation. Main gear legs are similar to those used on the wheel-gear C-82s and the gears are tucked up into the nacelles behind the engines, in the same manner.

Braking is in the front and rear drums of both main gears. There is no braking in the nose gear, but it is the first steerable track gear, using a heavy elbow-type strut.

▶ **Weight Factors**—The two main gears weigh 400 lb. more each, than their equivalent in wheel gears, while the nose gear installation weighs 275 lb. more—total added weight of the installation being 1075 lb.

While additional verification is being sought, it is believed probable that the weight ratio of the track gear to the wheel gear will show a steady decline as larger gears are used, until the track gears, at some not yet fully determined point, will be lighter than wheel gears necessary to carry the same load.

Dowty, the British firm originating the track gear, reportedly has shelved this design in favor of another somewhat similar type of gear using multi-wheel bogeys equipped with a "squat tyre" developed by Dunlop.

▶ **Company Roles**—On the C-82 development, Fairchild was the prime contractor to the Air Force, and Firestone was sub-contractor.

Firestone provided the endless belt, and machined the bogeys so that their grooves would fit those on the inside of the belt.

Firestone also provided considerable engineering data from its early track gears to Fairchild.

A Fairchild spokesman says that there is no present Air Force commitment beyond completing the tests on the one C-82 equipped with the track gear. However, the company is hopeful that additional C-82s may be ordered equipped with similar gear, and that other orders may be forthcoming for other sets of the track gear for use on other large airplanes.

Two press demonstrations of the track gear on the C-82 were made recently at New York International Airport (Idlewild) before the Aviation Writers Association, and at a Troop Carrier Command show.

Examination of the gear first hand, indicates that probably for the first time it is being used on an airplane large enough to get full benefit from the gear's peculiar advantages.

Earlier gears appeared out of proportion to normal wheel landing gear size, but the C-82 gear does not have this appearance, and is completely enclosed behind flush doors when fully retracted into nose well and nacelles.

What's Ahead for Rockets?

Experts queried see commercial utilization in decade, but point out need for greatly expanded research.

The vast majority of leaders in the field of rocketry expect to see a peacetime rocket industry, commercial applications of the device, and a growing field of usefulness for the rocket in greatly improved form within the next decade.

These predictions are contained in a special opinion survey of the industry by the Daniel and Florence Guggenheim Foundation under the direction of Dr. G. Edward Pendray, rocket consultant to the organization.

▶ **Technicians Queried**—Submitted for opinion to 105 technicians were these questions:

• What will be the most significant achievements in this field in the next ten years?

The overwhelming majority looks forward confidently to the development of new, more efficient fuels, predicting the development of propellants which will make possible lightweight rockets with high thrust. This means fuels which burn at higher temperatures and have higher performance/weight ratios.

Among the promising propellants mentioned are anhydrous hydrazine, liquified hydrogen, liquid ozone, and liquid fluorine. The ultimate attainment of a nuclear propellant is also predicted.

To make possible the employment of these improved propellants, new materials are anticipated, capable of withstanding the higher temperatures to be developed and new cooling techniques to be evolved. These new materials will also have greater resistance to erosion and corrosion than those now available.

• What is the greatest single need of the field at present?

More research, both basic and applied, into all aspects of rockets is considered the outstanding requirement. This research should be directed toward development of improved propellants, better materials, new combustion processes and cooling techniques, and improved designs and controls.

The field needs coordination of existing research and development programs, and a system of financing to permit establishment of various long-range programs.

Another crucial need is a greater supply of adequately trained scientists and engineers, preferably with practical experience as well as academic training in engineering and other sciences such as physics, chemistry, and mathematics.

• Is your organization doing any research, thinking, or planning with regard to peacetime or commercial uses of rockets and if so, can you give an idea of the nature of this work?

It was indicated that more than 80 percent of the companies were directing some of their rocket work toward peacetime applications.

Eight of the ten universities represented were reported engaged in research or training activities looking to peacetime rocket uses.

The Army, Navy, and National Advisory Committee for Aeronautics are doing no work specifically directed toward peacetime applications. However, the services are confident that peacetime uses will eventually result from some of their research and development work.

Industrial companies engaged in work looking to peacetime use of rockets are concerned mainly with the development of units for use as aircraft engines, in jet-assisted takeoff gear, braking for landing, aircraft engine starting, helicopter propulsion, and in miscellaneous industrial research applications.

• What specific engineering or other technical skills are now in shortest supply?

The skills now in greatest demand are related to the fields of dynamics, chemistry, mechanics, physics, and mathematics.

In the field of dynamics, greatest need is aerodynamicists, aero-thermodynamicists, and vibration and flutter analysts. Chemical engineers are needed for research and in the fields of organic, inorganic, physical and engineering chemistry.

Specialists in mechanics are needed for work on servo-mechanisms and turbine-blower-compressor blading, and in the phases of stress analysis and fluid mechanics.

• What additional research not now adequately provided for through governmental expenditures would be particularly advantageous to the future development of rocket propulsion?

None of those queried, including those in the services, feels confident that he is acquainted with all the research work carried on under governmental auspices.

There is general agreement, however, that the government program is comprehensive, generously supported, and that few avenues of research are neglected.

Nevertheless, it is evident that leaders in the rocket field would welcome the establishment of an independent research program. One reason for this is the empirical nature of government-supported research and the inherent dangers in a situation where almost the whole support for a research program is undertaken by the Government. If independent research programs are instituted, it is felt that they should be in the fields of metallurgy, propellants, mechanical design, aerodynamics, thermodynamics, electronics, instrumentation, guidance, and control and application of nuclear physics to propulsion problems.

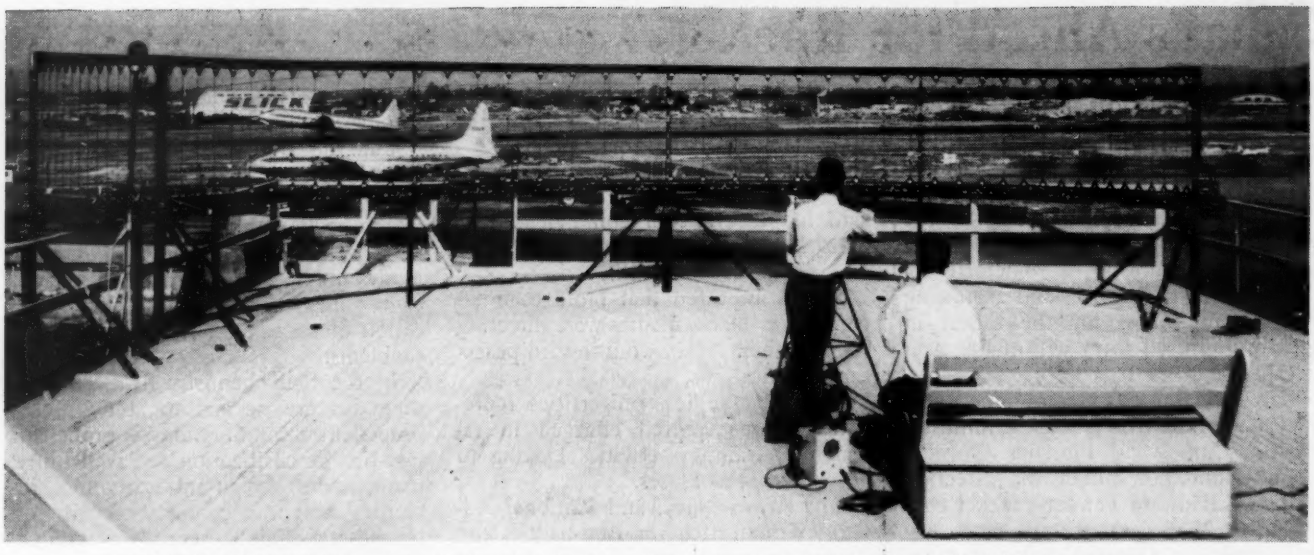
In the fuel chemistry field, research programs are needed to study rocket propellant combinations, propellant logistics, desensitization and availability, plant process design and economics, including potential competition with essential materials in event of national emergency. Also desired is stimulation of other than rocket engine applications for rocket fuels, to develop and support peacetime manufacture of promising propellants.

• What specific activities in addition to those now going on would be effective in order to speed the development of rockets?

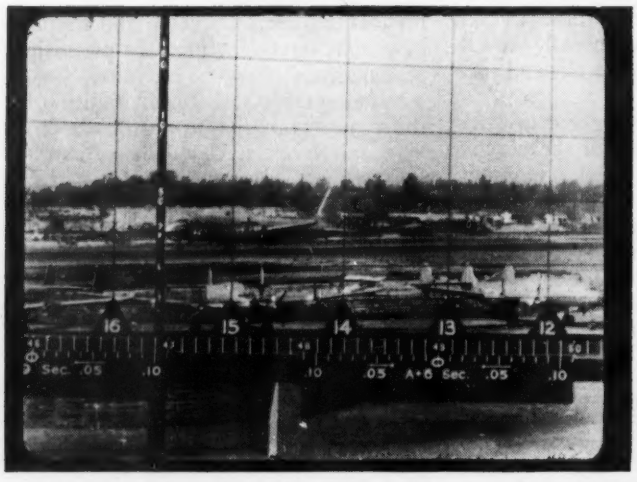
Programs should be established to assist in the education of scientific and engineering personnel, including the creation of professorships in rocket propulsion, research scholarships and fellowships, extension courses for practicing engineers in locale of their employment.

Needed, too, is revision of curricula in existing schools to include and emphasize courses in rocket science, the extension of educational and research facilities to schools, and the financing of university research projects.

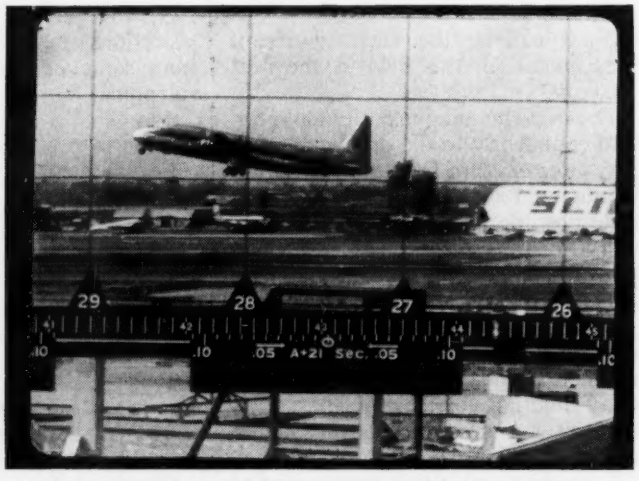
▶ **Broad Needs Outlined**—Aside from research and educational problems, leaders in the field suggest the formation of a committee to survey the general and the peacetime industrial possibilities of rockets; establishment of a periodical in which abstracts of papers might be given and in which broad surveys by qualified specialists might be presented; a thorough survey of existing literature on the subject and organization of the findings into authoritative treatises on various aspects of the subject; sponsorship of an international meeting at which world authorities might meet to discuss accomplishments and problems; a project for the development of a plane capable of speeds of 2500 mph. and above, for commercial uses; an analysis of the non-military applications of satellite and space ships; sponsorship of an interplanetary flight project; establishment of awards for specific achievements in rocket propulsion developments; and more active support for the American Rocket Society and other technical societies associated with this work.



CAMERA GRID SETUP (Fig. 1) for checking Constitution's takeoff and landing with 1/200-sec. accuracy...



...gives these films providing ready performance data. Fig 2 (left) shows elapsed takeoff time, distance traveled, and that craft



is airborne. Fig. 3 (right) tells distance traveled when 50-ft. altitude has been cleared, also gives time elapsed.

Accurate Checks Without Calculations

Lockheed Aircraft combines camera and grid into one unit to record takeoff and landing times and distances.

A new way to use a camera and grid in obtaining takeoff and landing times and distances is claimed by Lockheed Aircraft Corp. It combines camera and grid into one unit.

This system permits flight test engineers to read directly from a strip of motion picture film—without need for a slide rule to solve geometric relationship—the complete performance of a plane undergoing takeoff and landing studies.

W. L. Howland, chief of Lockheed's flight test instrumentation group and developer of the new grid system says: "From direct reading of the film we get a timing accuracy within ±1/200 sec., and a distance-traveled accuracy within ±4 ft.

▶**Device's Reception** — Additionally, Lockheed's is the first camera grid to include horizontal reference wires calibrated to give exact altitude of a subject airplane at every point within the grid's scope.

It opens a new vista of flight test simplification, and is reported to have won from Paul Bickle, civilian in charge of the flight test section at Wright Field, the declaration that it is the most advanced grid system in the United States, if not the world.

The Air Material Command thinks so well of it that a similar installation has been set up at Muroc Air Base, and another will soon be erected at Wright Field.

North American Aviation will also have a copy, and Civil Aeronautics Administration engineers are reported to be greatly interested in a portable unit Lockheed uses at Muroc to calibrate takeoffs over a distance of 12,000 ft.

▶**Grid's Makeup**—Roof-mounted as a semi-permanent installation, the prototype of the Lockheed grid (Fig. 1) describes a segment of a circle, in the center of which is mounted the recording camera.

A study of a sample section of flight test film (Fig. 2) shows the direct reading characteristics of the grid.

Against black pyramids along the reference base of the grid frame, are large numbers identifying 100-ft. runway distances marked by vertical wires.

Immediately beneath the distance marker pyramids is a moving metal tape graduated in seconds and one-tenth seconds to provide a reference of time elapsed from the start of a takeoff roll or the entry of a landing airplane into the grid area.

Below the moving tape, at 14 points

along the base of the grid frame, is a series of vernier panels which provide reference points for elapsed time data submitted by the time tape. These panels are calibrated to give time tape corrections at any point to which the camera may be directed, and provide a breakdown of time into hundredths of a second.

▶**How Grid Functions**—To illustrate the use of the grid in an actual test, and interpret the time tape, reference is again made to Fig. 2.

At the start of the test the airplane, Lockheed's No. 1 Constitution, was positioned on the runway so that the 0 vertical wire marker of the grid was aligned with the vertical line of a black inverted T painted on the plane's fuselage above the wing and close to the craft's center of gravity.

As the engines were accelerated preliminary to the takeoff run, both grid camera and time tape were started.

Start of the takeoff run was signaled automatically to the observing camera when the pilot released his brakes—by the flashing of a brilliant light set in the side of the fuselage, and by radio impulse flashing of a light within the camera. The latter light impulse was focused upon the edge of the film track to provide a double check of the moment the takeoff roll began.

In this particular test, study of the developed film showed that takeoff began when the moving time tape had progressed to 38 sec.

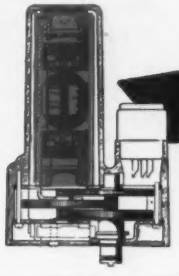
▶**Time, Distance, Altitude**—As shown in Fig. 2, the 0 marker point of the "A + 6 Sec." vernier scale caught the time tape at exactly 49 sec. By adding the correction of 6 sec. and subtracting the 38 sec. which had elapsed prior to actual start of takeoff, a resultant value of 17 is obtained as the number of seconds of elapsed takeoff time at the moment the picture was taken.

By reference to the grid wires, the inverted T on the fuselage shows a distance traveled of approximately 1480 ft. The photographed flash of two lights in the lower side of the fuselage just aft of the nose wheel well indicates that the aircraft is airborne.

Limit switches on right and left landing gear legs closed the light circuits when the gear became fully extended as flight condition was reached. Had the airplane lifted on one side, leaving deadweight imposed upon one gear, only one light would have shown.

Taking another frame from the motion picture sequence of this particular takeoff, Fig. 3 shows the Constitution clearing the 50 ft. altitude horizontal marker wire at a distance of 2800 ft. from start of the takeoff run. Breakdown of the time tape reference (43 plus 21 minus 38) discloses an elapsed time of 26 sec. from start of takeoff.

For *dependable* remote control, use this Whittaker Torque Actuator. This is the same assembly line produced power unit that has proven itself on thousands of Whittaker Motor-Operated Shut-Off Valves. With a flip of the switch, the powerful permanent magnet motor produces a 50 in-lb torque at the output shaft of the gear assembly, ready to solve your servo problem.



Advantages of Using Permanent Magnet Motor Over Split-Field Series-Wound Motor

- No mechanical brake to get out of order
- Smaller, more compact
- More power output for size
- Positive dynamic braking eliminates overtravel

SPECIFICATIONS

- 50 in-lb reversible torque at output shaft
- Standard gear assembly ratio—430:1
- Rated power consumption: ½-1 amp @ 20-30 v dc, zero to full load
- 1/50 hp permanent magnet motor
- Conforms to AN-M-10a requirements (Radio noise filters available if desired)
- Unit weight—1 lb
- Rotational limit output shaft factory adjusted.

Available for Immediate Delivery.

Write our Engineering-Sales Department for complete information. WM. R. WHITTAKER CO., LTD., 915 N. Citrus Ave., Los Angeles 38, Calif., Eastern representatives—AERO ENGINEERING INC., Roosevelt Field, Mineola, N. Y.

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HERE'S HOW A PROBLEM WAS SOLVED—A NEW DESIGN BORN

An Extra BOOST

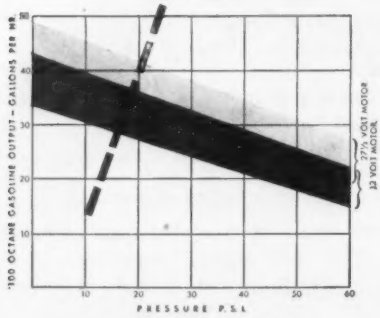
FOR DEPENDABILITY

In emergencies or at advanced power settings, an auxilliary source of fuel pressure is essential. This requires a booster pump; a pump that will give dependable, instantaneous operation and provide positive fuel pressure under accelerated conditions. With the help of Adel Engineers, this problem was solved in the design of the fuel system on the 1948 Ryan "Navion." Using the flight proven principles of Adel anti-icing and heater pumps, Adel Engineers designed a new fuel booster pump that is now giving outstanding performance on the "Navion."

This gear type Pump, a 12 or 24 volt dc motor and an adjustable relief valve, are all compactly designed into one unit. The pump is ruggedly built, yet weighs only 3.6 lbs. It is capable of pumping 100 octane gasoline at the rate of 30 gph. The Adel fuel booster pump is also suitable for pumping fuel to Aircraft type combustion heaters.

Adel clips and line supports are also standard equipment on the Ryan "Navion."

Assistance in design problems is an Adel Service. For advice on your particular problem, contact an Adel Engineer or write to Adel Precision Products Corp., 10727 Van Owen Street, Burbank, California. Canadian Representative, Railway & Power Engineering Corporation, Limited.



FLOW CHART

Indicates output vs pressure with relief valve closed

ADEL

ADEL PRECISION PRODUCTS CORP.
BURBANK, CALIF. ★ HUNTINGTON, W. VA.

Manufacturers of: Aircraft Hydraulic Systems • Marine and Industrial ISOdraulic Controls • Line Support Clips and Blocks Industrial Hydraulic Equipment • Aircraft Valves • Industrial Valves

An interesting feature of the grid system, with respect to the camera's recording of lights flashed at start of takeoff and point of becoming airborne, is that the grid camera's record provides a coordinating check of the grid time scale against records taken by "automatic observer" cameras within the airplane.

► **Grid References** – Obviously, the value of such a grid system as a precision instrument depends upon the exact positioning of its reference wires and the accurate functioning of the time tape.

Howland reports that vertical distance wires were positioned by surveying 100-ft. increments of the runway centerline and then checking each wire by its accurate bisection of a point of light at its relative distance point on the runway.

Horizontal altitude wires were checked against reference lines on small balloons raised to required heights along the runway centerline, under still air conditions.

Movement of the time tape is via a synchronous electric motor which maintains a constant speed with accuracy to 1/10,000 sec. Periodic checks of the motor and tape driving mechanism are made to preserve time consistency.

While a plastic film time tape has been used effectively, the metal tape now in use is considered more desirable, being less subject to distortion on windy days.

Weight Saving

Use of 75ST aluminum forgings instead of steel is reported to afford a saving in weight of close to 25 percent on landing gear struts—an advantage claimed possible by a new process which permits bonding of chromium directly to aluminum.

As fabricated for Chance Vought military craft by Cleveland Pneumatic Tool Co., the oleo section of each aluminum landing leg is protected with .002 in. of chromium applied by the Van der Horst Corp. of America.

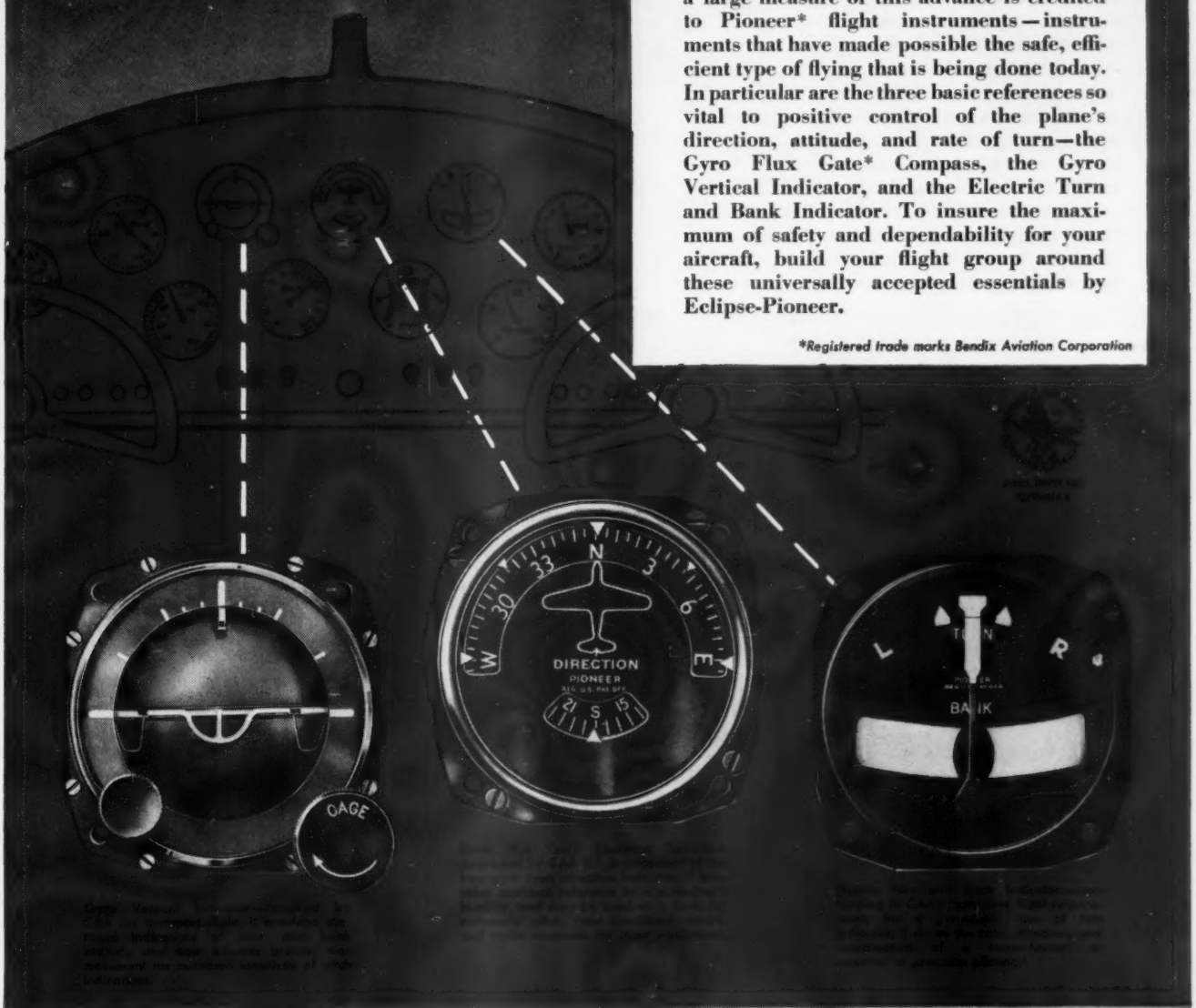
Until this development, it is claimed that use of light metal landing gear struts was impracticable, because aluminum has poor resistance to wear, and that in cushioning landing shocks, wear or scoring of the strut within the oleo cylinder would soon result in leakage of hydraulic fluid.

Precision plating of chromium, accomplished without need for under-plating is stated to provide an exceptionally smooth, hard surface which will insure a tight fit between strut and cylinder, with a life claimed to be several times longer than steel. Test data is reported to show that the chromium will not fail before the aluminum forging.

3 ESSENTIALS in any flight group

AIRCRAFT PILOTING has come a long way since the old "seat-of-the-pants" days, and a large measure of this advance is credited to Pioneer* flight instruments — instruments that have made possible the safe, efficient type of flying that is being done today. In particular are the three basic references so vital to positive control of the plane's direction, attitude, and rate of turn—the Gyro Flux Gate* Compass, the Gyro Vertical Indicator, and the Electric Turn and Bank Indicator. To insure the maximum of safety and dependability for your aircraft, build your flight group around these universally accepted essentials by Eclipse-Pioneer.

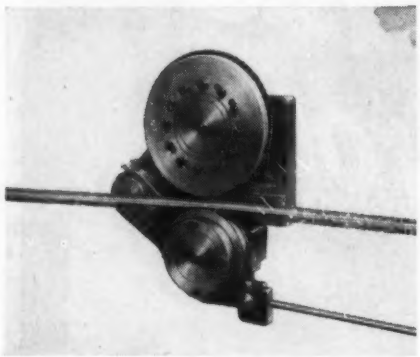
*Registered trade marks Bendix Aviation Corporation



Eclipse-Pioneer DIVISION OF Bendix AVIATION CORPORATION

TETERBORO, NEW JERSEY

NEW AVIATION PRODUCTS

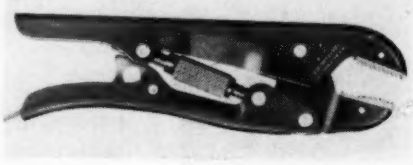


Labels Material

Marking machine No. 14, operating at speed of production, for steel, iron, brass, plastic rods, tubes, or cable, is made by **Acromark Co.**, 305 Morrell St., Elizabeth, N. J. Unit comprises ball bearing marking roll carrying engraved steel segment dies changed by loosening screws and turning face plate. Base can be bolted to bench or stand. Ball bearing pulley is interchangeable for different size grooves, and projection beneath base carries eccentric adjustment operated by hand lever to provide for diameter or rod or tube and depth of marking.

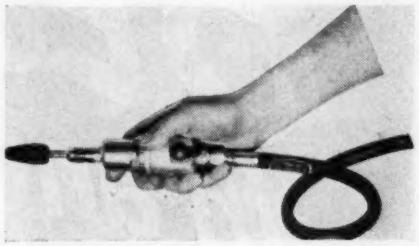
Carbide Bushings

Adaptable for plug gage and drill jig bushings, and for valves and orifices in spraygun nozzles are carbide bushings offered by **Carboloy Co.**, Detroit 32, Mich. Units are in two general sizes: Group A, from $\frac{1}{8}$ to $\frac{1}{2}$ in. long, $\frac{1}{16}$ to 1 i.d., $\frac{1}{8}$ to $1\frac{3}{8}$ o.d.; and Group B, from $\frac{7}{8}$ to 1 in. long, $\frac{3}{8}$ to $2\frac{3}{8}$ i.d., $\frac{1}{16}$ to 3 o.d.



Vise Pliers

New type vise pliers, "Gripso," features one-hand operation, finger-tip trigger release, three point grip, and multiplied power (claimed gripping range is from light pressure to ton). Maker is **H. R. Basford Co.**, 425 Second St., San Francisco 7, Calif. Tool, adaptable for use as pliers, hand vise, nut or pipe wrench, or clamp, has jaw construction employing flat upper and curved lower jaw, said to double resistance to side twist.



Flexible Air Hose

Lightweight air hose for small tools is announced by **B. F. Goodrich Co.**, Akron, Ohio. Described as unaffected by lubricating oil, hose is stated not to swell to cut air pressure or volume or flake off to choke tool. Features include: Easy handling; reduced abrasion, kinking, tearing, or snagging; and resistance to sun checking. In $\frac{1}{4}$ in. size, hose weighs 8.8 lb. per 100 ft. Working pressures are stated to be up to 250 psi.

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Production tomorrow
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BRAKE CYLINDERS
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Want the answer?
Hydraulic specialists... engineers and designers... at Gladden Products Corporation will dig into your problem and find the answer for you. All the skill and experience gained through the years is brought to bear on your requirements, upon design, and upon production.
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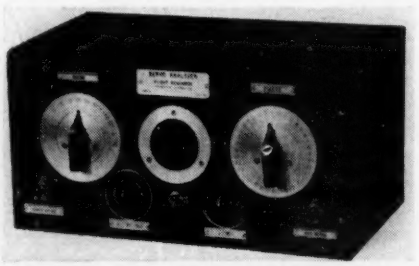

Checks Servos

Offered as aid in development and testing of automatic control systems employing 400c. error measuring devices such as Selsyns or E type pick-offs, is servo analyzer designed by **Flight Research Engineering Corp.**, P. O. Box 1-F, Richmond 1, Va. Claim is that unit provides response data which otherwise could only be obtained by computations or graphical methods. Frequency response and transfer function may be obtained over input range of from 1-60c./sec. Analyzer may also be used to obtain equivalent d.c. transfer function of a.c. amplifiers which include damping or integrating networks.

Valve Job Accessory

New heavy-duty stone dressing stand for valve reconditioning is made by **Black & Decker Mfg. Co.**, Towson, Md. Unit has calibrated quadrant marked with popular angles, and bear-

ings are sealed from abrasive dust. Screw-lock clamps are hand-adjusted to combinations of stones up to 6 in. and angles from 0-90 deg. Unit can be bolted to bench or work top of B&D valve shop cabinet. Standard equipment includes adjustable arm with diamond point and screw-feed nib, and adjustable mandrel.

Aircraft Portable Extinguisher

Portable, dry-chemical fire extinguisher CAA-approved for aircraft use is offered by **Ansul Chemical Co.**, Marinette, Wisc. Unit weighs 10 lb. charged, is 19⅛ in. long, 3½ in. dia. Chemical is ejected by CO_2 cylinder pressure and liberates fire-smothering gases upon hitting flame area. Device is rechargable.

For Punch Work

Double-purpose Di-Acro punch, designed to perforate holes of different shapes and sizes up to 4 in. dia., is also adaptable for variety of blanking, drawing, embossing, and forming operations. Maker is **O'Neill-Irwin Mfg. Co.**, 358 Eighth Ave., Lake City, Minn. Advantages claimed are: roller bearing cam converting operator effort into increased pressure at impact point; triangular shaped ram, hardened and ground for accuracy; flexible gaging arrangement providing location of material; interchangeable punches in round, square, oval and rectangular shapes.

CUT SURFACE CLEANING COSTS UP TO 78%

...with CEE-BEE Procedures

Actual service tests show drastic savings

Aircraft: Douglas DC-3's, DC-4's

Problem: Determine costs of aluminum surface maintenance; removing oxide, film, stains, grease and oil.

Condition: Aluminum surfaces in very poor condition; heavily oxidized, corroded and dirty.

Materials: Cee-Bee Alumaloy A for removal of oil, grease, sludge, exhaust stains. Cee-Bee A-3 for cleaning and brightening aluminum.

Cee-Bee CASE STORY No. 59

Facts and figures substantiate all statements.

This was an actual service test, conducted under operator's supervision. The aircraft, selected by the operator, were particularly dirty, almost black with oxidation, badly corroded on under surfaces.

Cee-Bee A-3 and Alumaloy A were used by operator's own personnel, all inexperienced help. Resulting cleaning time was naturally higher than usual. Actual time and cost records were kept. These figures were projected to yearly averages in accordance with Cee-Bee Engineered Procedures now in use by many other scheduled operators. Hourly wage rate was estimated at $1.10 average throughout. Actually, wage rates are considerably higher. Hand polishing figures are operator's actual fleet maintenance costs.

RESULTS: Aircraft appearance was highly satisfactory to operator. Cleaning compounds met operator's safety standards.

DC-3's—yearly cleaning and brightening cost, each airplane

Hand Polishing Method...$1852.00

Cee-Bee Procedures

Wet (outdoor) method.. 569.00*

Dry (hangar) method... 887.80

*69% SAVING

DC-4's—yearly cleaning and brightening cost, each airplane

Hand Polishing Method...$4892.00

Cee-Bee Procedures

Wet (Outdoor) method.. 1055.00*

Dry (hangar) method... 1847.00

*78% SAVING

Complete details on this test are available on request

FAYING SURFACES ARE SAFE

Laboratory tests, field tests and actual operation prove the all round safety of Cee-Bee materials. One international airline using Cee-Bee A-3 regularly has specimens taken from airplanes cleaned over a year ago. Taken apart after continuous service over salt water, operator reports faying surfaces showed ABSOLUTELY NO ATTACK; proof that Cee-Bee A-3 is safe. This operator commends Cee-Bee A-3 for its complete absence of harmful effects.

Cee-Bee Engineered Cleaning Procedures and materials are saving many dollars and giving operators cleaner aircraft. They can do the same for you. Write for further information.

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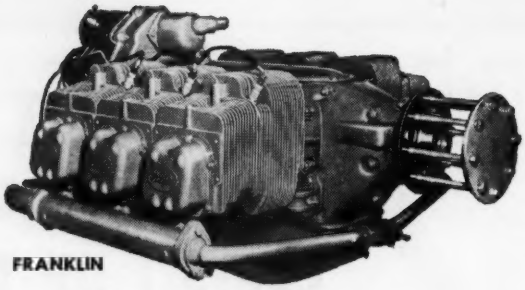
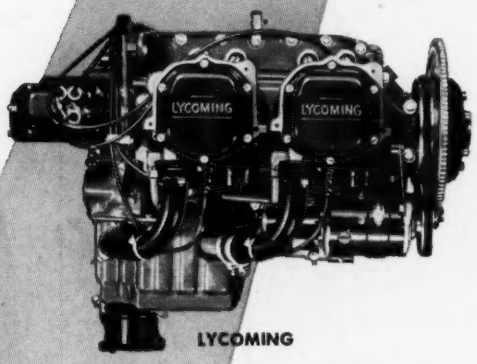


FRANKLIN

Bendix-Scintilla



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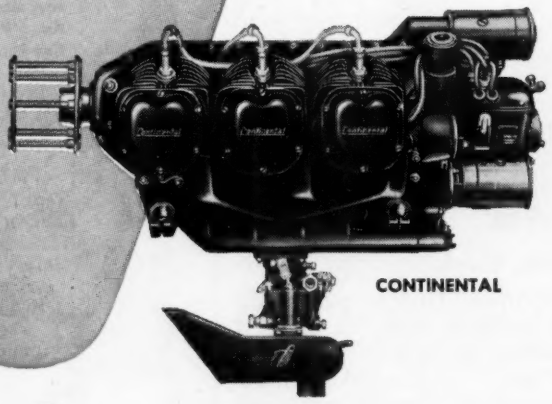
the choice of the leaders

WHEN YOU specify Bendix-Scintilla* ignition equipment for original equipment or replacement, your judgment is confirmed from every side by airlines, the Army and Navy, plane and engine manufacturers. Bendix-Scintilla magnetos, for example, supply the strong, exactly timed, vital spark for fine personal plane engines of leading manufacturers. For more than twenty years—on such famous planes as the Spirit of St. Louis, the B-29, the Constellation, and the latest jet pursuit ships, Bendix-Scintilla ignition equipment has been basic to aircraft safety, reliability and efficiency.

*TRADEMARK



CONTINENTAL

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BENDIX-SCINTILLA IGNITION EQUIPMENT

BENDIX SCINTILLA

SCINTILLA MAGNETO DIVISION of
SIDNEY, N. Y.

Bendix
AVIATION CORPORATION

First meeting of the reorganized CAA Nonscheduled Flying Advisory Committee with Delos W. Rentzel, new CAA administrator, brought together in Washington (left to right around the table): Leighton Collins, editor, Air Facts; Dr. Harvey Casebeer, president Butte (Mont.) chamber of commerce; Prof. Lynn Bollinger, Harvard University; William L. Anderson, Pennsylvania aeronautics director; George Haddaway, publisher, Southern Flight; Al Koch, CAA assistant administrator, aviation safety; Mrs. Vivian Flinchum, committee stenographer; George Burgess, deputy CAA administrator; Lloyd Child, assistant to administrator and committee secretary; Administrator Rentzel; Don Flower, Cessna sales manager and committee chairman; Fred Lee, deputy CAA administrator; Freeman Albery, CAB safety rules chief; E. S. Hinsley, deputy to Koch; J. B. Hartranft, Jr., AOPA general manager; William H. Klenke, Jr., Stinson sales manager; Les Marsden, Buffalo (N. Y.) Aeronautical Corp.; Harold Wood, Birmingham (Ala.) auto dealer; Henry von Berg, president, Pathfinder Flying Service, Stockton, Calif. Meeting was the first for Rentzel.

Nonsked Committee Asks End of Spin Test

Group renews request, citing handicap to spinproof planes, and research on causes of spin-stall accidents.

CAA's Nonscheduled Flying Advisory Committee has called for new consideration by CAA and CAB of the committee's previous request that the spin test be eliminated in private pilot examinations.

To support its renewed request, the committee has amassed additional evidence, using as its main arguments:

- Present spin test requirement puts a premium on the design of airplanes that spin easily so that they can be used in training, and handicaps aircraft that are designed as spinproof or spin resistant.
- Fatalities and serious injuries in stall and spin accidents usually result from dangerous low altitude turns and maneuvers in which the pilot has neither time nor room to recover, even if he knows how.
- Research shows that in spite of training, few pilots can accurately determine when their aircraft is "on the edge of a stall" without mechanical aid, and that ability to recognize a "straight-ahead stall" does not necessarily mean that the same flyer is able to detect an approaching stall in other flight attitudes.

It was pointed out by the committee that elimination of spin tests from the private pilot curriculum was recommended by the National Aviation Clinic at Springfield, Ill., last fall, and has been recommended individually by numerous groups of aircraft operators and pilots.

▶ **New Members**—The meeting was the first session for several new members of the committee, and for the new Administrator of Civil Aeronautics, Delos W. Rentzel.

New members are: Prof. Lynn Bollinger, Harvard University business school; J. B. Hartranft, Jr., general manager of Aircraft Owners & Pilots Association; Leighton Collins, editor of Air Facts, New York; Dr. Harvey L. Casebeer, president, Butte (Mont.) Chamber of Commerce; Harold Wood, Birmingham (Ala.) auto dealer; Henry von Berg, president, Pathfinder Flying Service, Stockton, Calif.

▶ **Crosswind Gear** – The committee voted a resolution calling for single strip airports as a result of the success of the recently developed castering landing gear for crosswind landings. Resolution said:

"In order that airports be more conveniently located, cost the taxpayer less and result in more airports for the same amount of federal money available for Class 1, 2 and 3 airports, it is recommended that where single strip airport design both improves convenience of site location and cuts cost to the community, that preference be given to such design."

After discussion of regulations for physical examinations for private pilots every two years, committee endorsed the existing regulation, thereby nullifying a previous recommendation that only one physical examination be given.

► **Shoulder Harness**—A review of CAA investigations into use of shoulder harness for private pilots led merely to an endorsement of the investigations, but to no positive stand for installation of shoulder harness in personal aircraft.

Recent AOPA survey of plane companies showed that with one exception manufacturers are not considering shoulder harness installations, except experimentally. Ercoupe is reported to be trying a shoulder harness arrangement which attaches behind the seat to structural members, uses essentially a standard seat belt, and might cost about $25 extra as optional extra equipment.

Luscombe tried shoulder harness experimentally on two-placers but has no commercial plans for its use. Beech reported shoulder harness could be installed on the Bonanza and specified attachment points but did not indicate such installations are being made.

Other manufacturers replying, report engineering difficulties in finding proper attachment points for shoulder harness on folding front seats of four-placers and tandems and cite sales department contention that average pilot would not use shoulder harness if he had it.

AOPA reports contrary views in letters from its members who are asking information on how to make homemade shoulder harness installations on their present planes.

Sales managers of two plane companies are members of the advisory committee—Don Flower, Cessna, and William H. Klenke, Jr., Stinson.

► **Other Recommendations**—In other recommendations, the group called for:

- Continued use of revolving light beacons on the airways.
- A 12-hour forecast of airway weather rather than an eight-hour forecast, and location of local weather bureaus at airports, so that flying weather information would be more available.
- More emphasis by flight instructors in stall recognition, and on careful watching of instruments by students in all flight training periods.

Sub-committees were asked to work out a more acceptable definition of the words "for hire" in the Civil Air Regulations, to study the question of exclusive contracts for sale of aviation fuel at airports built with federal funds, and to study state-federal relations in enforcement of aviation regulations and investigation of air accidents.

Commendation was given CAA for the designation of industry representatives for repair agencies and for the development project for less expensive lightplane receiver equipment for VHF airway radio use.

Chairman Flower presided and various CAA officials, in addition to Rentzel and Lloyd Child, secretary of the advisory committee, participated in the discussions. Principal outside speaker was Dr. P. J. Rulon, Harvard university graduate school of education, who reported on the stall-warning flight test research which he has been conducting (AVIATION WEEK, Jan. 19).

Waste Rock Runways

Upper Michigan's most unusual airport, the Isle Royale Sands Field at Houghton juts out into Portage Lake and is made up of pulverized waste rock deposited there since 1853 by the mill of the Isle Royale copper mine. Flyers say the material deposited by the mill makes good runways; the wastes are still being used to enlarge the field.

Used as an airfield for more than 20 years, the field is operated and maintained by Superior Airways and affiliates for commercial and privately owned planes, and for training courses given by the Michigan College of Mining and Technology. Seaplanes anchor in Portage Lake just off the field, and it is used in winter by planes equipped with skis.

Airport in Conflict With Outdoor Movie

An airport operator and the New York license commissioner are trying to figure out whether or not a drive-in theater can be located 50 feet from an airport.

Out of court negotiations are now under way following court issuance of a show-cause order requested by the airport operator.

► **Pares Flying Hours**—Edward McCormick of Staten Island Airport claims the Department of Marine and Aviation, which curtailed flying hours at his field, did so to make way for the movies. The department order pared his flying hours from sunrise—half an hour before sunset to sunrise—7:30 pm.

McCormick says this curtailment cuts into his business since much of his flying is done just before twilight.

► **Justify Theater**—The New York license commissioner, Benjamin Fielding, has been ordered by the Staten Island Supreme Court to justify his issuance of a license to the new $350,000 theatre.

LATEST BRITISH LIGHTPLANE

The Fairey Junior, new British single-placer, was recently demonstrated at White Waltham Aerodrome, Berkshire, England. Plane has fuel capacity of 11 gal., and approximate range of 370 miles at cruising speed of 66 mph. The Fairey Junior's weight is approximately 430 lb. Manufacturer claims that the craft is earmarked to eventually sell in the vicinity of $2000.

For Piper Aircraft Financial Comeback

Piper Aircraft Corp. has retired its three-year $600,000 RFC loan in less than six months, William T. Piper, president, has announced. Retirement was effected, he said, through operational economies, profitable production and steady sales.

He also disclosed that $110,000 was paid to 12 major creditors on June 1 against notes not due until June 15, 1951. Notes had been accepted by the creditors on past due accounts with the understanding that payment would be subordinate to the RFC loan. The $110,000 payment reduces outstanding debt to $521,000. It is expected that further reduction can be made over the next few months.

► **Increase Sales**—Piper said available records for the first half of June indicate the company will step up its plane sales even beyond those of April and May when the company led all other personal plane manufacturers in number of sales.

The Piper corporation made its financial comeback by holding down production to positive commitments only. Stock of finished planes on hand and unsold now equals, in units and in value, less than a full week's production at current levels.

The Piper line now includes the two-place side-by-side 65-hp. Vagabond, priced at $1990 flyaway Lock Haven, Pa.; a side-by-side 65-hp. trainer at $2195; a 65-hp. tandem trainer at $2495; a 90-hp. tandem trainer at $2572, and a 115-hp. four-place Family Cruiser at $3825.

Airport Suit Dropped

Residents of Fairlawn, Akron suburb, apparently have dropped their court fight against Chamberlain Airport. They failed to appeal their injunction suit to the Ohio Supreme Court before the deadline set after the Ninth District Court of Appeals ruled against them.

James M. W. Chamberlain, owner of the 450-acre $700,000 airport development, said it was too late to resume construction this year since he had already committed the field to model plane flyers this summer. Construction will be started next spring, but the field probably will not be ready for use until 1950.

Approximately 100 residents in the general vicinity of the airport filed joint suit to block the field as a nuisance. They won a Common Pleas Court decision, only to lose out in the Appellate Court, which authorized completion and operation of the field as a "legitimate and necessary business."

BRIEFING FOR DEALERS & DISTRIBUTORS

LEGAL CRASH PRECEDENT—An aviation legal precedent in New York state was set by a jury finding that Salamanca Airport Corp. was solely negligent and liable for $735.40 damages to a house in Salamanca, N. Y. The house was struck by one of the company's trainer planes. Plane was piloted by Clyde R. Hudson, Batavia. Owners, Mr. and Mrs. John J. Crawford, sued both pilot and company, but jury held pilot free of negligence.

EVANS-TRUMAN PROMOTION—Cliff Evans and George Truman of Washington, D. C., World War II pilots who demonstrated the reliability of the American personal-type plane by flying two 100-hp. Piper Super Cruisers around the world, are now booking aviation meeting speaking engagements. They already have filled about half a dozen on the East Coast. Pattern for their appearances: they fly into town in their Super Cruisers, speak at an aviation dinner or luncheon sponsored by local civic organizations on the advantages of learning to fly, and describe their world tour experiences.

MASSACHUSETTS INSTALLS GEAR—Massachusetts Aeronautics Commission has installed a new Goodyear crosswind gear in the state-owned Stinson Voyager. Used extensively on inspections of new airports and periodic re-inspections of old fields, the plane is expected to provide a service test and demonstration of the crosswind gear.

CROSS-COUNTRY CROSSWIND—John E. Sims, assistant to Second Region CAA administrator, recently picked up CAA's crosswind gear Cub (Goodyear installation) at Washington and took it for a cross-country flight from Atlanta to Los Angeles. Purpose was two-fold: a further flight demonstration of the gear, and a flight check of progress on Skyway No. 1. Majority of landings made were crosswind in winds of 8 to 35 mph. With gas running low and with 90 deg. crosswinds, Sims made two landings on one-strip fields at Clover, Va., and Arneson, La.

Sims reported "far too few" airmarkers along Skyway 1, and found his reception at airports along the way ran from cold to friendly.

He called the Skyway 1 route a "navigator's dream" with plenty of railroads to follow. He urged preparation of specific Skyway bulletins, with instructions to tourists flying the route.

AEROMATIC APPROVALS—Approval for four installations of Aeromatic propellers in addition to a factory equipment application of the propeller for the Ryan Navion have been announced. Approvals were on the 85-hp. Ercoupe Model E, Aeromatic Model F-200 with 00-73E or F blades; Piper Family Cruiser PA-14, 115 hp., Model F-200, 00-74E blades, and Model 220s with 0-85 blades and on both the Fairchild Model 41 with 145 hp. and the Stinson L-5 with 185 hp. Foreign plane Aeromatic installations have been increased to 10, Koppers Co., Inc., maker of the propeller, reports.

JOHNSON IN AGAIN—Texas sources say R. J. (Pop) Johnson, whose rakish looking two-place plywood Johnson Rocket was one of the first postwar planes to drop out of the market, is preparing another bid for personal plane sales, this time with a "Johnson Bullet 185" designed to cruise at 185 mph. and with a 28-ft. wingspan. Prototype Bullet is reported nearly complete at a plant at Tyler, Texas.

At full production, the Tyler plant can turn out three Bullets a day with 150 workers, Johnson says. Financial difficulties cut the Rocket off after the company had obtained CAA certification on it, but before many planes had been produced.

WALTER BEECH ON TOUR—Walter H. Beech, president of the aircraft company bearing his name, is completing a 30-day sales tour of South American cities, flying in a twin-engine Beech D-18S. Principal stops on the tour included: Caracas, Venezuela; Rio de Janeiro, Brazil; Asuncion, Paraguay; LaPaz, Bolivia; Lima, Peru; Quito, Ecuador; Bogota, Colombia; San Salvador, Panama and Mexico City. In addition to demonstrating the luxuriously equipped six-place twin Beech, the tour seeks to stimulate South American government and private business interest in the four-place Beech Bonanza, and the forthcoming 20-place Beech Twin Quad transport.

—ALEXANDER McSURELY

Preparation scene at last year's glider meet at Samaden, Switzerland.

Swiss Subsidize Private Flying

Influx of U. S. lightplanes pushes sport flying; Aero-Club's 6500 members in variety of activities.

ZURICH – Mountain peaks 12,000 feet high, weather that can't be predicted for much more than 30 minutes at a time, and air strips of less than 300 meters long here and there might keep some flying enthusiasts on the ground—but not the Swiss.

Flying in Switzerland is a very well-organized sport. And most everyone who flies or who wants to fly belongs to the Aero-Club of Switzerland.

Founded in 1901, the club's first members were air pioneers who ventured into the clouds in baskets fastened to gas-filled balloons. The well-known Swiss scientist Prof. A. Piccard is an honorary member of the club, and M. Devaud of Geneva, incumbent club president, is a charter member.

After the first World War, airplanes became more frequent sights on the then primitive Swiss airfields. In 1922, the first glider contest was held in Gstaad.

► **Membership Is Varied**—Today, the Aero-Club boasts a membership of 6500 persons, divided among those who fly airplanes (powered craft), those who are glider pilots, basket balloon soarers and model airplane builders.

Under the leadership of a "Zentralsekretariat," the club is comprised of 30 regional sections. These sections are made up of the groups mentioned above. The secretariat handles administrative details and works out activities set forth by a planning committee, the executive board and a technical commission. It also supervises publication of the monthly aviation magazine, Aero-Revue, which has a circulation of 10,000.

► **International Passports** – When a member pilot decides he wants to make a flight to some other country on the continent, he contacts the Aero-Club and the club furnishes him with maps, weather data and a "carnet-de-passage" which is a sort of international passport for his plane. The carnet system, sponsored by Federation Aeronautique Internationale, enables him to land on foreign soil without encountering difficulties with the authorities.

During 1947, the club issued "carnet-de-passage" for 280 planes out of a total of 345 licensed civilian planes in the country. Enthusiastic tourists by air, the Swiss piloted their planes to airports in France, Belgium, Holland, England, Italy and the Scandinavian countries.

Still unclaimed, however, is the Aero-Club's bottle of vodka to the first Swiss club member to set his plane down on a Moscow airfield.

► **Government Helps** – The matter of finances, as with most clubs, is a problem here, too. As keen as enthusiasm may be, the Swiss have found it doesn't always balance the books. Members pay dues of 20 Swiss francs ($5.00) a year which includes a subscription to the magazine Aero-Revue. The Federal Government helps out with a contribution of 10,000 Swiss francs a year. Some revenue is picked up through special flights staged for stamp and envelope collectors, and every year a

special Pro-Aero stamp sale is held for several weeks for the benefit of the club.

With gasoline approximately 60 cents a gallon, flying is not a cheap sport in Switzerland. Plane rental fees are high as is hangar space for those who own their own planes.

▶**U. S. Planes Used** – But with the great influx of American-made light airplanes, principally the Piper Cub, civilian sport flying has been given a big boost. Along with Piper, other popular planes are the Cessna, the Luscombe and the Fairchild. As air acrobatics is emphasized in air meets more than speed or distance records, the Bücker, a small German biplane, was also popular because of its easy maneuverability, sturdiness and power, though it has not been available since the war.

Besides its public relations and administrative duties, the Aero-Club has six flying schools under its supervision. These are located at Berne, Grenchen, Birsfeld, Altenrhein, Spreitenbach and Zurich. Here regular classes are held for students with instruction in both flying and gliding.

▶**Gliding Popular**–Gliding has become a popular sport with the Swiss flying set despite the tremendously changeable weather problem. The Swiss glider members have accepted the challenge of mountain chains and alpine valleys and hold their gliding contests right in the heart of the alpine regions.

Samaden, located in the Upper Engadine valley not far from St. Moritz, was the scene of the first postwar international gliding competition last August. Teams from England, France, Poland, Sweden, Czechoslovakia and Egypt competed with the Swiss in alpine gliding contests.

This year, the Aero-Club will be host to gliding fans from all over the world at an international glider meeting to be held in Samaden July 19-31. Club members are hoping that some American teams will participate.

▶**Moved from England** – The meet, sponsored by FAI, originally was scheduled for England as a part of the Olympics competition. Shortages in England led FAI to decide upon Switzerland as host nation.

In addition to these international meets, the glider groups stage a large number of domestic and inter-club contests. Throughout each year, the glider pilots keep logs of their flights and then register their six best performances for the year with the Aero-Club. The pilot holding the best total record of glides is then named Swiss champion for that year.

Last summer, Dolf Gehriger, who is in charge of the "Zentralsekretariat," set a new Swiss distance record for gliders by gliding from Zurich to Grenoble, France, in his "Weihe," a German single seater now being built in Sweden. It took him seven hours to make the 324-kilometer trip, crossing over the French Alps.

▶**Leads as Glider Builder**–Switzerland holds a leading position in Europe for glider construction as well as a top spot in glider performances. Although no powered civilian aircraft are built in the country, the domestically built gliders such as the "Moswey III," the "Spalinger S-18," the "Spyr IV" and the new "WLM-1" are well-known.

The limitations of the war years which brought civilian flying in Switzerland almost to a standstill encouraged model airplane building. Today, it is carried on by 114 active groups under the supervision of the Aero-Club technician Arnold Degen. These groups hold meets during the spring, summer and fall at various places in the country and enter into foreign competitions, where their model planes have achieved a reputation for quality workmanship.

▶**Warehouse Workroom**–Members of the Zurich section of model plane builders have converted an unused warehouse into an ideally equipped work and club room where they may work on their models every afternoon after school. During vacations, courses in construction and theory are organized on request and led by Aero-Club technicians.

In this way early interest in flying is nourished in Swiss youth under Aero-Club supervision and encouraged until these youths are old enough to take part in the other civilian aviation programs flying for fun in tiny Switzerland. **–Zelva P. Fischer**

Isla Verde Airport

SAN JUAN–Construction of the Isla Verde airport is expected to get underway now that the Navy Department has withdrawn its objections to the project. Approval of the Puerto Rican planning board is all that is needed to close the deal.

Two of the model airplanes shown during a meet at the Swiss winter sports resort of Arosa.

Cargo Lines' Financial Status Hit

Using CAB data, passenger airlines say independents are in no position to develop airfreight industry.

By Charles Adams

Interests opposed to certification of domestic all-cargo operations are making the most of a spotlight now being aimed at the independent airfreight industry's weakest point—its financial instability.

Balked in their efforts to have the 18-month-old record of the airfreight route case reopened, the major passenger-carrying airlines are currently gathering new ammunition from reports which all-cargo operators were required to submit to cab last month. The new data show in detail the extent to which bankruptcy has overtaken the airfreight lines which in Nov., 1946, began presenting their cases for certification to CAB examiners.

▶ **Uncertain Future**—On the basis of this evidence, the presently certificated carriers are claiming the independents are far too shaky to be intrusted with the future of airfreight. Now expanding their own all-cargo fleets at an unprecedented rate, the passenger-carrying lines are attempting to show they are in a better position to develop the new industry.

U. S. military planners, who have used their influence in behalf of certification for all-cargo operators, may be swayed by the independents' currently discouraging financial picture. The military has backed all-cargo lines in the past because of their potential contribution toward building a much-desired peacetime reserve pool of several thousand commercial transports.

▶ **Fleets Grow Smaller**—Presently certificated carriers, which operate about 1000 transports over domestic and foreign routes, are now pointing out that due to bankruptcies and retrenchments among uncertificated lines the latter are more likely to contract than expand their cargo fleets.

Retort of the uncertificated airfreighters is that the passenger-carrying airlines are also in poor financial shape for the most part, and their deficits during the postwar period far overshadow losses by all-cargo operators. The independents charge that some of the certificated lines now pointing a finger at all-cargo carrier bankruptcies would be in the same boat except for emergency action by CAB to increase mail pay.

▶ **CAB Delays**—Meanwhile, there is the possibility that further delays by CAB in deciding the airfreight route case will force other all-cargo lines to the wall. Oral argument in the proceeding will not be held before August, and a Board decision probably will not be forthcoming until late fall—two years after the start of hearings in the case. In the interim, certification or exemption of the freight forwarders, combined with the new floor under freight rates, could give the independents a lift.

CAB asked 13 airfreighters still seeking route certificates for up-to-date financial and operational data. The reports:

• **Air Borne Cargo Lines,** New York—No report received by CAB. Company underwent bankruptcy proceedings and is inactive. Carrier at one time in 1946 had 10 DC-3S.

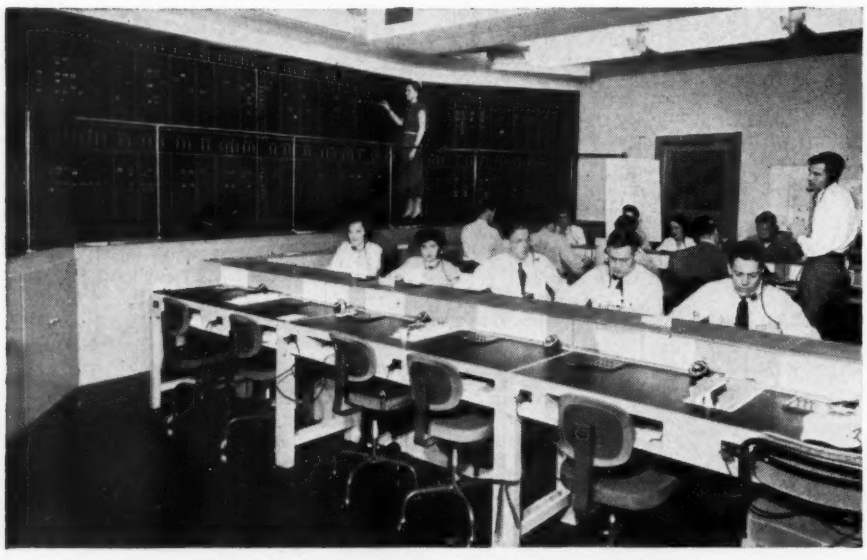
• **Air Cargo Transport Corp.,** New York—a petition for reorganization was filed in January, but the company has continued operations. Last month the company announced a reorganization plan and said principal stockholders have indicated necessary funds to place it in operation will be forthcoming. The plan reportedly is also acceptable to ACTC's largest creditors.

Balance sheet on May 31, 1948, showed current assets $123,682, total assets $298,703, current liabilities $3500, capital stock outstanding $497,560, and total deficit $988,268, including a $26,794 loss in first quarter 1948. Operating deficits in April and May of this year were $5281 and $4138, respectively.

ACTC flew 3,000,000 ton miles of freight in 1946 and 2,800,000 in 1947 but only about 253,000 ton miles in first quarter 1948. Company at one time operated 14 DC-3s, but this fleet has been greatly reduced. Personnel on Mar. 31 numbered 23.

• **Airnews,** San Antonio—Recommended for a certificate by CAB examiners, the company operates a small all-cargo route in southern Texas with revenue freight consisting almost entirely of papers printed by its parent firm, Express Publishing Co. Carrier has flown 6,000,000 newspapers in the past two years. Present fleet includes two DC-3s and four Noorduyn Norsemen planes. More than 36,000 freight ton miles were flown in first quarter 1948. A $37,398 deficit was reported on June 30, 1947, and a $4950 profit in the nine months ended Mar. 31, 1948.

• **American Air Express Corp.,** New York—No report was received by CAB, with mail returned unclaimed. Com-



EAL's RESERVATION SCOREBOARD

Every 24 hours, Eastern Air Lines receives approximately 27,000 messages through its new nerve center in Atlanta. Constructed at a cost of more than $100,000, this "stock market-broker's room" type scoreboard shows space availability on every EAL flight. Eastern has direct lines through a relay system to all the 85 cities in 24 states, Puerto Rico and Mexico, in the EAL system. The bulk of EAL'S seat space is controlled in Atlanta. With the new automatic facilities it takes but 30 seconds of the passenger's time to make and confirm a one-way or round-trip reservation.

pany formerly operated coast-to-coast with three C-47s.

• **Calasia Air Transport** (formerly Air Travel, Inc.), San Francisco—Company has been leasing its five C-54s and reportedly has not itself been active in freight operations. Balance sheet May 31, 1948, showed current assets $3326, total assets $126,476, current liabilities $18,390, deficit to date $132,336 and capital stock issued $152,500. Carrier had $112,411 net loss last year but a $26,109 profit in the first five months of 1948.

• **California Eastern Airways,** Oakland, Calif.—Action in bankruptcy was filed on May 15, and the company stopped service. Through Mar. 31, 1948, the carrier had an 888,028 deficit, including $471,631 in 1947 and $161,794 in first quarter 1948. Balance sheet as of Mar. 31 showed current assets $242,662, total assets $929,610, current liabilities $615,768 and capital stock outstanding $905,000. Employment on Mar. 15 was 203.

Prior to its bankruptcy proceedings, CEA operated five C-54s coast-to-coast and had planned to lease 10 C-46s from the Air Force. It flew 11,156,942 ton miles of freight last year—a total exceeded only by Slick Airways and American Airlines. California Eastern operated 3,341,225 freight ton miles in first quarter 1948. CEA creditors will meet Aug. 2 to act on a new financing proposal. The company has been recommended for a certificate by CAB examiners.

• **Flamingo Air Service,** New York—A petition in bankruptcy was filed Mar. 1, 1948, but the carrier has continued operations. Through Mar. 31, 1948, the company had a $273,536 deficit, including $71,931 in 1947 and $27,883 in first quarter 1948. There was a small profit in April. Balance sheet on Mar. 31 showed current assets $17,768, total assets $208,496, current liabilities $71,407 and stock outstanding $225,000.

FAS started operations in May, 1946, and has been active continuously since then. It had five C-47s and 26 employes on Mar. 15 of this year. The company flew 1,172,971 freight ton miles last year and 339,919 in first quarter 1948.

• **Globe Freight Airline,** Hartford, Conn.—Company started service on its Boston-New Orleans route in May, 1946, with C-47s but suspended operations in June, 1947, reporting a $95,476 deficit for the period. During the first half of 1947, Globe flew 266,526 freight ton miles. The carrier planned to resume service this year with three C-46s leased from the Air Force.

• **Mutual Aviation,** Buffalo, N. Y.—No report was received by CAB. Company last year operated from Buffalo to New York and from Buffalo to Detroit and Chicago with C-47s.

• **Slick Airways,** San Antonio—Largest U. S. airfreight carrier, Slick also apparently is the soundest financially despite sizable losses. Deficit through Mar. 31, 1948, was $1,383,613, including $444,474 in 1947 and $77,879 in first quarter 1948.

Balance sheet on Mar. 31, 1948, showed current assets, parts and supplies $1,148,235, total assets $2,148,419, current liabilities $511,252 and capital stock outstanding $1,758,780. Company flew 21,462,874 freight ton miles last year and 5,463,907 in first quarter 1948. Employees numbered 621 on Mar. 15 of this year. Recommended for a certificate by CAB examiners, Slick has been operating 11 C-46s during recent months. It plans to lease 10 more aircraft from the Air Force.

• **The Flying Tiger Line,** Burbank, Calif.—Active as a transcontinental cargo carrier since 1945, the company reported a $1,153,394 deficit through Mar. 31, 1948 including a $413,185 loss in 1947 and a $121,889 loss in the first quarter this year. Mar. 31 balance sheet shows current assets $627,372, total assets $1,458,640, current liabilities $212,699 and capital stock outstanding $726,000.

Organized as National Skyway Freight Corp., the company flew 5,654,604 freight ton miles last year and 2,722,118 in the first quarter of 1948. Employes on Mar. 31 of this year numbered 252. CAB examiners have recommended the Tigers for a certificate.

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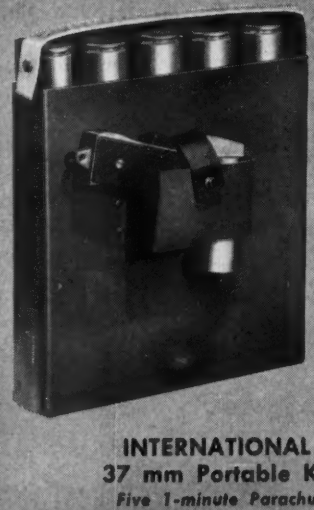

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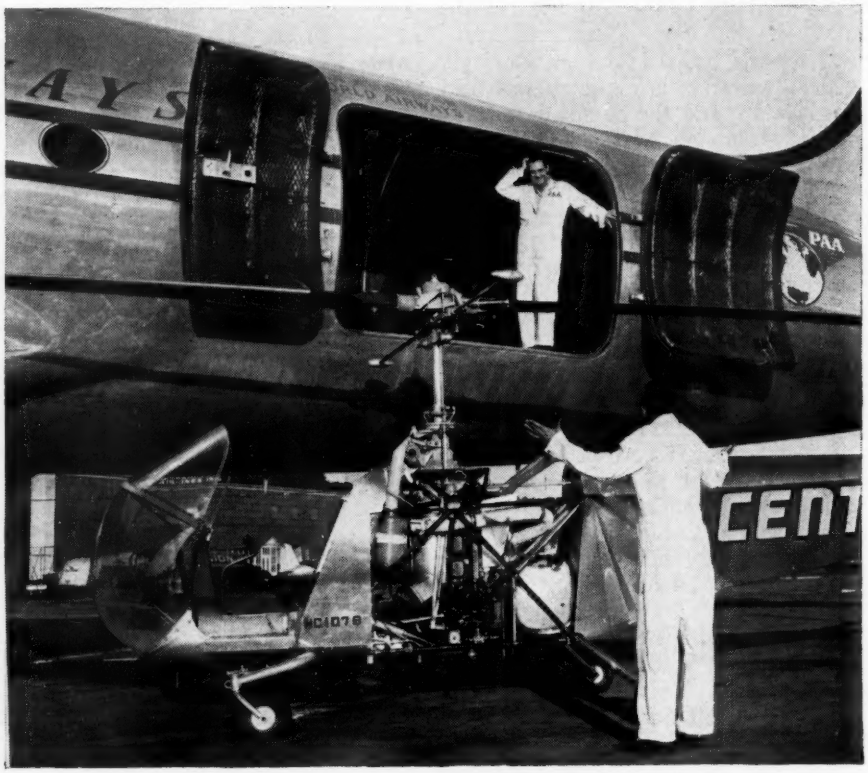
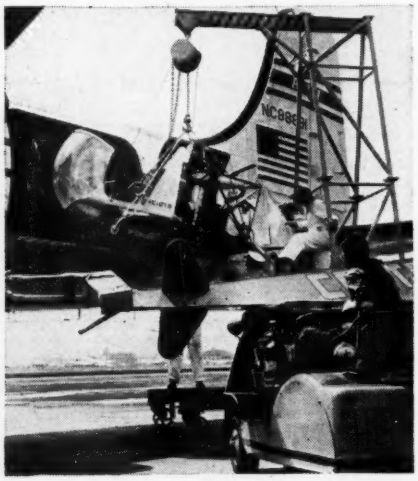
• **U. S. Airlines,** St. Petersburg, Fla.—After having suspended operations in October, 1947, because of the rate war, U. S. resumed service in May of this year with C-47s.

Deficit through Mar. 31, 1948, was $1,677, 875, including a $481,620 loss in 1947 and a $45,197 loss in the first quarter this year. Current assets on Mar. 31 aggregated $844,184, total assets $1,375,781, current liabilities $56,812 and capital stock outstanding $1,500,000.

• **Willis Air Service,** Teterboro, N. J.—Now operating aircraft maintenance facilities in addition to its cargo flights, Willis reported a $53,677 deficit as of Dec. 31, 1947, and a $947 profit in first quarter 1948. Current assets on Mar. 31, 1948 aggregated $458,648, total assets $666,345, current liabilities $509,294 and stock outstanding $193,524.



PAA Mechanics Face a Problem . . .



. . . of Packing a Helicopter Into a Plane

Mechanized equipment and skilled cargo men were utilized in loading this 1815-lb. Bell Helicopter aboard a Pan American Airways DC-4 bound for Juneau, Alaska. Top picture shows the helicopter parked in front of the DC-4 cargo hatch at Boeing Field, Seattle, as mechanics contemplate a problem akin to putting a schooner in a bottle. But the rotary wing craft was disassembled and hoisted aboard with no crating necessary for the 5-hr. flight. The Department of the Interior will use the helicopter in Alaska to gather data for contour maps.

PO Balks at CAB Mail Rates

Although legally obliged to pay amounts set by CAB, Post Office takes Congressional rap for its deficits.

Goaded by Congressional criticism of the Department's high deficits, Post Office officials are suggesting with increased bluntness that many of their troubles can be traced to the Civil Aeronautics Board's open-handedness on new routes and higher airmail rates.

The Post Office, which must pay the airlines whatever amounts are set by CAB, has been losing few opportunities to oppose new route extensions during recent months. And the Department has told Congress it needs a larger legal staff to permit full-scale intervention in CAB cases involving requests for higher airmail rates.

▶**CAB in Squeeze** – Meanwhile, the Civil Aeronautics Board also is dodging brickbats from two sides. Airmail rates which the Post Office considers too liberal are being attacked as inadequate by the carriers concerned.

Biggest issue at present between the Post Office and CAB is the "big five" mail rate decision of last April, which saw the Board increasing payments to American Airlines, United Air Lines, Eastern Air Lines, Northwest Airlines and TWA. The Post Office did not buck proposed higher temporary rates for TWA and United, which have been found to be critically in need of additional cash. But it argued that any increases for the other three are unwarranted.

▶**No Unsubsidized Airlines**–The Post Office indicated the big five decision set up "need" rates rather than "service" rates for the carriers. Thus, in the Post Office Department's opinion, unsubsidized certificated airlines no longer exist in the U. S.

"Mail pay is being used to support more than a just share of the certificated airlines' costs," the Post Office asserted. "The proposed [big five] rates exceed fair and reasonable compensation for mail transportation plus a reasonable return on the carriers' investments."

Insufficient consideration has been given to the value of developing and establishing specific standards for determining honest, efficient and economical management, the Post Office continued. It added that the true cost of mail service can be measured within reasonable limits only by an adequate cost study, and no such study has been made.

▶**Protest Overruled**–CAB already has overruled Post Office protests against institution of higher temporary mail rates for American, Eastern and Northwest. But the Department is now girding to fight Board proposals to make the increases permanent. Even TWA and United, the Post Office contends, should not have a permanent mail pay hike.

Airline route expansions also are being fought by economy-minded Post Office officials. During recent hearings before Congressional appropriations committees, the Department emphasized the number of extensions it had opposed.

Here again, however, CAB has frequently acted contrary to Post Office wishes. Late last month, the Board issued a temporary feeder certificate to Iowa Airplane Co. after a finding that airport facilities now are adequate on two of the carrier's three route segments.

The Post Office, in an unprecedented step, had opposed issuance of the certificate (AVIATION WEEK, May 17). It questioned whether CAB in December, 1946, would have selected Iowa Airplane Co. to operate a feeder route if the Board had realized the probable cost per mile in mail pay subsidy. The Post Office's unsuccessful protest added that IAC proposed serving only nine points not already on a certificated airline.

▶**Robinson Affected**–Following up its opposition to Iowa Airplane Co.'s activation, the Post Office made a similar move with reference to Robinson Aviation, which was designated for feeder routes in CAB's Middle Atlantic area decision last February. Robinson in April said airports were available at ten of the 14 stops on its routes and asked the Board to issue the promised certificate.

The Post Office charged that "in the final analysis, Robinson is proposing to activate several hundred new route miles while actually rendering air service to only two new points–Ithaca and Middletown, N. Y."

In an oral argument just concluded, the Post Office bucked Florida Airways' plea for expansion.

CAB Counsel Resigns

Hardy K. Maclay, CAB's assistant general counsel-finance, has resigned effective in mid-June. He is leaving the Board to enter private law practice with Stanley Gewirtz, who has resigned as executive assistant to CAB Chairman Joseph J. O'Connell, jr. (AVIATION WEEK, May 24).

AIRviews

It is plain that air freight's glamor days are over. "Rushing serum to Nome" is no longer front page news. Today, every hour witnesses emergency deliveries of some kind by the nation's carriers of air freight.

However, such emergency shipments have ceased to be the vital part of the picture. Now the backbone of air freight is the leading merchants and industrial firms who have carefully analyzed their costs and have determined that the use of air freight for normal shipments is currently *saving them money!*

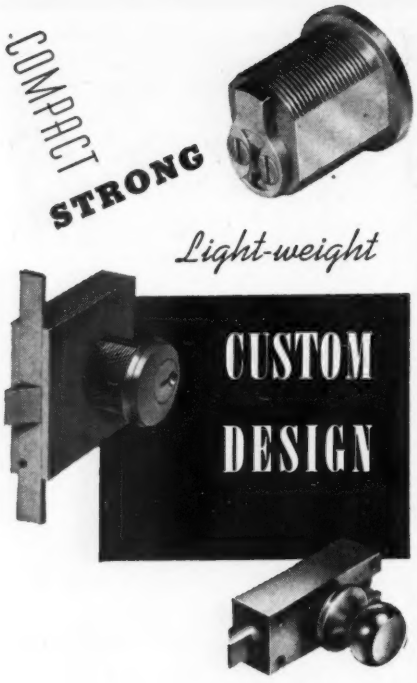
In arriving at this conclusion, the seller or distributor of goods is bound to consider several factors. The basic factor, of course, is *speed.* Air freight's swiftness permits the catching of favorable markets . . . the wide distribution of goods in a matter of hours . . . the ability to keep customers happy and well stocked . . . and savings on inventory, interest-in-transit, and warehousing charges.

Then, too, there are the factors of cleanliness, of reduced cost in packaging and handling, of less loss through breakage. All these factors, plus speed, add up to lower costs . . . better service.

Today, air freight has expanded to such an extent that it has become available to many businesses whose leaders have not yet had a chance to investigate thoroughly its manifold advantages. The fact that many internationally successful industries and merchandising organizations are now using air freight so extensively presages an increasing number of air freight users, for which we in the aviation industry must be prepared.

Donald W. Douglas

PRESIDENT
DOUGLAS AIRCRAFT COMPANY, INC.
SANTA MONICA, CALIFORNIA



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TACA Trouble

CAB examiner's report asks denial of renewed foreign carrier permit.

Waterman Steamship Corp. has encountered another obstacle in its long fight to carve a niche in air transportation.

After losing all attempts to obtain a route certificate from CAB for operations in the Caribbean area, Waterman acquired a controlling interest in TACA Airways System last year. But now, partly because of the surface carrier's control, TACA may lose its rights to operate between Central America and the U. S.

▶ **Victory for PAA**—Should TACA be denied further access to the U. S., it would be a signal victory for Pan American Airways. PAA has charged that Waterman, through control of TACA, is attempting to get by subterfuge routes it could not obtain by direct application.

A report issued recently by CAB Examiner William J. Madden recommends denial of applications by TACA, S. A., for new foreign air carrier permits authorizing service between San Salvador and Miami and between San Salvador and New Orleans.

Similar permits had been issued TACA, S.A., by CAB early in 1947, but they expired last summer when the U. S. withdrew as a party to the International Air Transport Agreement. TACA has continued to operate under the expired permits.

▶ **Examiner's Report**—Madden urged denial of the San Salvador-Miami permit in view of TACA's suspension of service on that link early this year. But the shift in TACA control to Waterman was cited as ground for refusal to authorize continued operation of the more important San Salvador-New Orleans link.

Even when CAB gave the original permits to TACA it recognized that about three-fourth of the company's stock was owned by U. S. rather than Salvadoran citizens. The Board decided, however, to issue the permit in accordance with the wishes of the Salvadoran Government, although under terms of the International Air Transport Agreement it would have been justified in withholding the franchise.

▶ **Waterman Control**—Through its wholly owned subsidiary, Waterman Airlines, Waterman Steamship Corp. now controls about 26 percent of the voting power of TACA Airways, S.A. (parent of TACA, S.A.), according to Madden. Next largest block of stock is less than 9 percent. Madden said all the principal officers of TACA, including President Paul E. Richter, and a majority of the board of directors, appear to represent Waterman interests.

The examiner commented on the "rather unusual manner" in which Waterman has been pumping additional working capital into TACA, which has continued to operate in the red. Waterman charters steamships to the air carrier for slightly less than the "going rate" for such vessels. The ships are operated by a Waterman subsidiary, and, Madden continued, so far as TACA is concerned its principal efforts involve entering on its books the profits earned through the charters.

▶ **Issues Defined**—Madden said the fact that TACA is domiciled in El Salvador should not becloud issues concerning the nationality and status of the carrier's real owners. He added that since the case in reality deals with a national of the U. S., a thumbs-down attitude by CAB on TACA could not be considered an affront to El Salvador.

"The TACA application should be considered as though a U. S. national were seeking the right to inaugurate and operate a service in direct competition with another U. S. national [Pan American Airways] which already holds a certificate. Viewed in this light, it appears the application should be denied."

The examiner said that disregarding the fact that TACA is now controlled by a U. S. surface carrier, the route permit application should be rejected.

U.S. Service For Iceland Carrier

Icelandic Airlines Ltd. (Loftleidir, H.F.) has received authority to operate scheduled services into the U. S.

With President Truman's approval, CAB last month issued the company a foreign air carrier permit to fly between Iceland and the alternate terminal points New York and Chicago. The permit was granted in accordance with a reciprocal air transport agreement in effect between the U. S. and Iceland. AOA inaugurated commercial air service to Iceland in March, 1947.

▶ **Nine Planes**—Operating domestically in Iceland and internationally between Reykjavik and Prestwick, Scotland, via Norway, Denmark and Sweden, Loftleidir, H.F., owns and operates nine planes including a DC-4.

Until an additional DC-4 is obtained, LHF will operate its U. S. service on a nonscheduled basis, but on a minimum of six trips monthly. The company has its own maintenance facilities in Iceland, and maintenance of its planes in the U. S. will be provided either by its own mechanics or through arrangements with American carriers. Since LHF lacks adequate facilities for major overhauls of DC-4s, this service will be performed under contract either in the U. S. or in Europe.

CAB Says No

Permission for cutrate, roundtrip summer fares is refused EAL and NAL.

Moves by Eastern Air Lines and National Airlines to bolster summer traffic between Florida and northern points through bargain roundtrip fares have taken another setback.

Two months ago, CAB suspended proposed EAL and NAL excursion tariffs which would have permitted passengers to make a roundtrip for only 125 percent of regular one-way fares between May 1 and Nov. 30.

The Board's action represented a victory for Delta Air Lines and Capital Airlines which saw in the bargain prices the possibility of a general rate war having disastrous consequences.

▶ **New Attempt**—But shortly after suspension of their initial summer excursion tariffs, Eastern and National tried again. They proposed new roundtrip rates providing a more moderate cut—to 150 percent of regular one-way fares.

In suspending the second pair of tariffs, CAB declared it was fully sympathetic with efforts of any carrier to increase its gross revenues during off-peak periods. The Board pointed out, however, that such efforts must have a reasonable chance of success.

▶ **Losses Seen**—CAB said the 50 percent discount on the price of the return ticket was being proposed for a substantial part of the traffic carried by EAL and NAL in the face of generally rising costs. "The amount of new traffic that would be generated by the proposed reductions is purely conjectural," the Board continued. "And if the proposed tariffs should not generate a substantial amount of new traffic the financial effect on [Eastern and National] might be serious."

The decision noted that the proposed reductions might force equivalent fare slashes by other carriers operating in the eastern part of the U. S., thus undermining the existing rate structure.

CAB added that it could not overlook the possibility that failure of the cut rates to achieve compensating traffic volume might lead to requests for increased mail compensation by all carriers affected. "The hazards involved," the Board concluded, "seem to outweigh the possibilities of benefit to the carriers and the industry."

SAS Daily Service

Scandinavian Airlines System will start daily DC-6 service between New York and Scandinavian capitals Aug. 1. SAS currently is taking delivery on 10 DC-6s.

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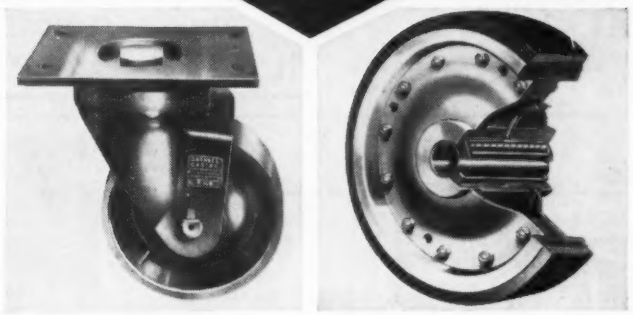

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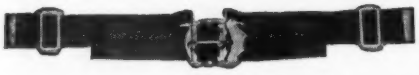

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WAL'S NEW LOOK

Wearing Western Air Lines' new stewardess uniform, Nikki Landrum (left) on the way to boarding her plane is given a critical once-over by Virginia Hork, who wears the old-style uniform.

ATA Elects New Member

Robinson Airlines, Ithaca, N. Y., was elected a member of the Air Transport Association at an ATA board meeting last month. The feeder's membership will become effective on the date of the carrier's certification.

ATA's Board of Directors also elected Warren Lee Pierson, TWA board chairman, to membership. Pierson succeeds LaMotte T. Cohu, former TWA president and now head of Consolidated Vultee Aircraft Corp. In other action, the ATA group approved a considerably reduced budget for operations in the second half of 1948; heard Milton W. Arnold, ATA vice president-operations and engineering, describe the status of the SC-31 air navigation traffic control program; and received a report from Stuart G. Tipton, ATA general counsel, on the recent International Civil Aviation Organization meeting at Geneva, Switzerland.

No Pressurization

Northwest Airlines has been sued by a passenger who claims her ears were damaged by a too-rapid descent.

Mrs. Lois Wilhelmy Stinech filed a claim of $25,090, complaining that on a flight from Chicago to Seattle her ears and sinuses were injured permanently. During a rapid descent near Billings, Mont., air pressure caused "excruciating pain" and brought on a temporary paralysis of her face, throat and larynx, said Mrs. Stinech, who was suffering from a cold when she began the flight.

The airline is charged with negligence in making the rapid descent and in permitting her to continue the journey knowing she was ill.

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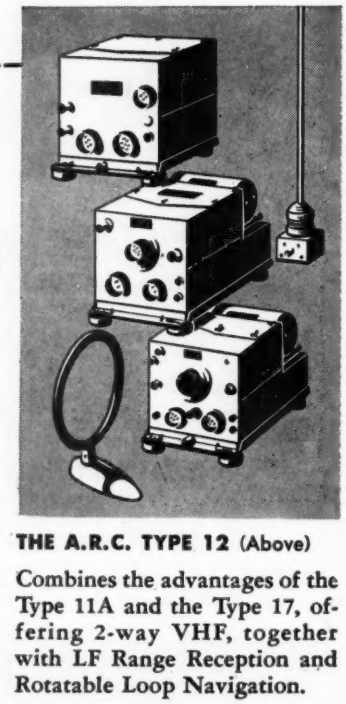

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SHORTLINES

► **American**—Reached a new peak in cargo volume in May. Airfreight totaled 1,921,629 ton miles, up 152 percent over May, 1947; express aggregated 465,745 ton miles, up 22 percent over May last year; and mail 695,715 ton miles, up 16 percent.

► **American Overseas**—Has begun its seventh year of service. Since starting operations it has flown more than 134,000 persons across the north-Atlantic.

► **Continental**—Air Line Stewards and Stewardesses Association has accused Robert F. Six, CAL president, of blocking their efforts to negotiate an employment agreement "by insidious innuendoes that they are red-tinged." The statement followed the company's request that the union sign a non-Communist affidavit.

► **Hawaiian**—Has added two more DC-3s to its fleet to handle increased schedules. Equipment now includes ten passenger DC-3s, two cargo DC-3s and a seven-passenger Beechcraft.

► **Northwest**—From Mar. 15, when NWA began remitting 5 percent fare refunds to passengers on delayed flights, through June 9 only 1400, or 8.4 percent, of scheduled arrivals were more than 30 minutes late. Company says cost of the refunds have been small compared to the benefits of the plan during its first three months of operation.

► **TACA**—Has instituted reduced roundtrip excursion fares to Central America effective through Sept. 30.

► **Trans-Canada**—Expects to fly 10,000 British immigrants to Canada by next spring under its arrangement with the Dominion government. Pact calls for operation of about 230 charter flights by the end of next March. Flights from Prestwick and London began in May.

► **United**—Has postponed an offering of 369,618 shares of common stock pending official findings in last month's DC-6 accident at Mount Carmel, Pa. ...Roundtrip fares between California and Hawaii have been reduced 10 percent....Company reports 85 percent of all flights departed on time during May against 87 percent in April and 82.5 percent in March....UAL's entire fleet of 34 DC-6s is now in operation. ...Airfreight volume in May aggregated 1,694,613 ton miles, up 12 percent over April and 167 percent above May, 1947, total.

► **Western**—Has taken delivery on the first of its 10 Convair-Liners.

► **West Coast**—With officials estimating three to six months will be required to ready Portland's flooded municipal airport for airline operations, WCA has announced indefinite continuance of McMinnville, Ore., as an alternate airport for all service to and from Portland.

► **Willis Air Service**—Reports net income of $947 in the first quarter on total operating revenues of $72,246. Company had 179 employes in March. Freight ton miles flown totaled 130,163 in January, 33,796 in February and 144,090 in March. Two DC-4s were sold to the Flying Tiger line in February.

CAB SCHEDULE

July 6—Hearing on Pan American Airways' Pacific certificate amendment case. (Docket 2953.)

July 7—Oral argument in Boston-Bermuda route case. (Docket 1650, et al.)

July 9—Oral argument in American Overseas Airlines mail rate case. (Docket 1666.)

July 12—Hearing on PCA-National equipment interchange agreement. (Docket 3291.)

July 12—Oral argument in safety action brought by CAA against former American Airlines pilot Charles R. Sisto. (Docket SR-1987.)

July 14—Prehearing conference on new service between U. S. and Puerto Rico. (Docket 2123, et al.)

July 14—Oral argument in Chicago Helicopter service case, postponed from June 30. (Docket 2384, et al.)

July 19—Oral argument in Pan American Airways' domestic route case, postponed from July 13. (Docket 1803.)

July 26—Hearing on Capital Airlines' mail rate case. (Docket 484.)

July 26—Hearing on foreign air carrier permit application of Servicos Aereos Cruzeiro do Sul. (Docket 3336.)

July 27—Hearing on National Airlines route consolidation case. (Docket 2967.)

Aug. 2—Hearing on Board's investigation of free and reduced rate transportation. (Docket 2737, et al.)

Lockheed Runs Keflavik

Lockheed Aircraft Service, Inc., has contracted with the U. S. Air Force Air Materiel Command for operation of the commercial airport at Keflavik, Iceland. Lockheed took over July 1, under a one year contract.

Daniel J. Gribbon was appointed manager of the airport by LAS. He joined the company in March, 1948, after 10 years' service with the parent Lockheed Aircraft Corp.

Television for UAL

United Air Lines has inaugurated television advertising in Chicago, New York and Los Angeles. The experimental, one-minute spot commercials feature slides showing a DC-6 transcontinental flight and scenic points along United's route. A narrator gives a running description of the flight.

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Acme—21; Flight—13; International News—22; McGraw-Hill World News—34, 35; Transatlantic News—32; USAF—12.

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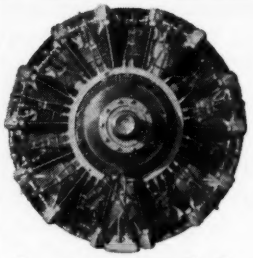

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U.S. Navy Photo

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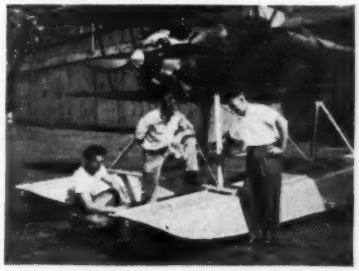

20 years old, these Edo M-2665 floats are still in use on a J-4 Waco owned by Frank Mills (right) operator of Philadelphia School of Aviation, Essington, Pa.

Walter O'Connor (right) has logged over 6000 hours of student and charter work on these Edo Model 1320 floats installed on his Luscombe at Agawam, Mass.

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EDITORIAL

Anniversary Report

AVIATION WEEK marks its first anniversary with this issue. Born of the popular AVIATION NEWS, a weekly, and the pioneer AVIATION, a monthly, it was greeted with some skepticism in a field which had always known either straight technical-engineering tomes or straight news magazines, and too many of both for their publishers to make any money. A combination news and technical weekly was unheard of in this country.

But soon the original NEWS subscribers were renewing in large numbers to AVIATION WEEK, and the renewal rate of the old AVIATION subscribers had risen higher than when AVIATION was operating separately.

The quality of AVIATION WEEK'S subscription list is a satisfaction to our editorial staff. No other aeronautical publication has so many executive, administrative and technical personnel as subscribers. In fact, few subscriptions are accepted from persons not making their living in aviation. This preserves for our advertisers the most important, undiluted aviation industry group available—no wasted circulation.

It is important, too, we think, that these men pay good hard cash for AVIATION WEEK. Nobody gets AVIATION WEEK free, because it's not a giveaway magazine.

Within its first year AVIATION WEEK has taken a commanding lead in advertising. In the first five months of 1948, it carried 620 advertising pages. The second magazine, a well established monthly, carried 313. The third magazine, also a monthly but a newer entry in the field, ran 243 pages. The fourth, a western monthly, ran 180, and the fifth, an air transport news magazine, carried 154. In May AVIATION WEEK led the second publication 121 to 66.

Yet there have been times when some of these advertisers—or at least their publicity or advertising managers—have disagreed violently with our news policies. Let it be said that AVIATION WEEK never intends to offend or hurt anyone, advertiser or plain Joe Doakes. It has the most alert, level-headed staff any business paper was ever blessed with, however. We believe they know news; we trust their judgment. They know we are not the spokesman or the voice of any special interests in the aviation field. Nor can we be party knowingly to inaccurate reporting of suppression of legitimate news. We have our say editorially but our pages are always open to those who disagree with us. Some business papers prefer to be followers instead of leaders of their industries. Being a yes man pays off for a while but not in the long run.

Conducting a respected business magazine with a reputation for keeping its readers up to the minute in both news and technical fields is always something like an outdoor tight rope walking act on a gusty day.

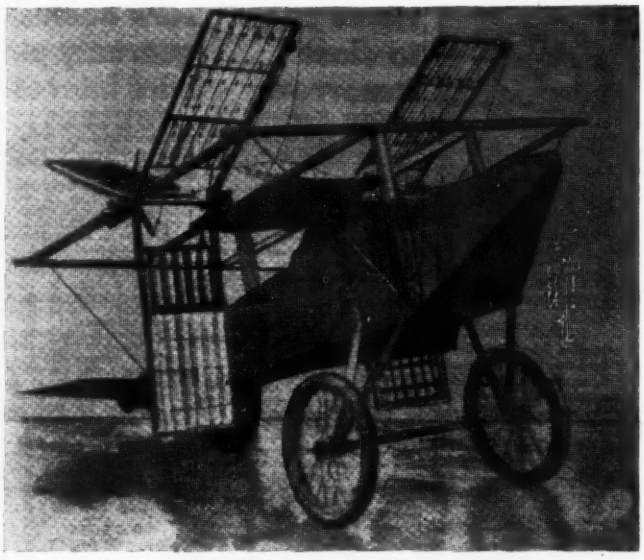
Those few protesting advertising and publicity friends would give us huzzahs if we ran only "authorized" press releases, but the readers would not stick around very long. Somewhere, we fallible humans must draw the line to produce a magazine that interests the most advertisers and readers simultaneously.

We intend to keep trying. We have big plans for AVIATION WEEK. We thank our readers for their immensely encouraging support.

R. H. WOOD

Flying Washboard-We're Scooped

(Picture and Story Below are from Los Angeles Daily News)



(By Don Dwiggins, Daily News Aviation Writer)

A lot of newspaper readers have been inquiring lately why is it the daily press is constantly being scooped by a weekly national periodical—AVIATION WEEK—in breaking such stuff as supersonic flight stories.

We herewith retaliate by presenting hitherto undisclosed information on the latest secret weapon, the Flying Washboard.

Fiendishly designed to scare hell out of the Russians, it has a reputed ground speed of 10 mph. on a wet track, carries two cantons of firecrackers and a skyrocket for armament and is not yet in quantity production.

In fact, so secret is this weapon the Air Force doesn't even know about it. But here, in a smuggled film from an undisclosed source it is presented for the first time. We present this startling disclosure to satisfy the sensationalism requirements of avid aviation readers and to prove we're up with AW's editor, Bob Wood, in such matters.

Bob Wood has done a wonderful thing in keeping his readers posted on secret, million-dollar projects despite Air Force and Navy security rulings, the Espionage Act (which carries a death penalty in wartime) and common decency . . .

AVIATION WEEK first gained notoriety in disclosure last fall that the Bell XS-1 had flown supersonically . . .

Later, this column was forced (Jan. 10) to unwrap some performance data on the speed job released by Bell officials, including its design performance of 1400 mph. in a climb and the fact that the first supersonic flight was made going uphill.

A couple of weeks ago we showed why the North American F-86 was rated faster than the world speed record. This because of its trim, swept-wing configuration, but more so because of its hot little jet plant, the TG-190.

Wood went us one better this week and broke another military secret: the F-86 punched the sound wall in dive-tests not long ago. Every conscientious aviation writer has a deskful of such restricted data, dug up with a lot of effort, which awaits security release before publication.

Far from stifling initiative in covering aviation matters, such a procedure tests the ability of newsmen in digging out facts, so when the military says okeh, the best man gets the best story.

Maybe we should tell you all about the XS-3 and XS-4, Lockheed's F-90 and a few guided missile secrets to save face, and maybe we shouldn't . . .

But until the brass says run it, we're sitting on such stories, whether we like it or not.

But I bet Bob Wood never heard of the Flying Washboard.

(No. But did you catch our Flying Shoe (June 21) Dwiggins! It was AVIATION WEEK *Dec. 22, and not your column of Jan. 10, that first revealed the XS-1 hit supersonic speed in climbs, Dwiggins. And your newspaper didn't "sit" on any of those quoted* AVIATION WEEK *stories you deplore, even if your column did, Dwiggins.*

Somebody on our staff thought your column had a tinge of unpleasantness, but we didn't, Dwiggins. You and your Flying Washboard gave us the biggest laugh of the week.—R. H. W.)

MICRO *Precision Switches*

have dependability for aircraft use!

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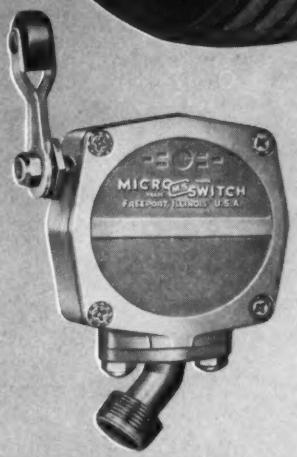
● MICRO precision switches fulfill rigid requirements in electrical controls in landing gear mechanism. They prevent accidental retraction of landing gear, while weight of plane is on gear . . . they act as interlocks between landing gear and throttle warning horn . . . they prevent gun firing when wheels are down . . . they operate indicator light which shows wheels are locked in "down" position. This represents but a few of their many uses in the aircraft field.

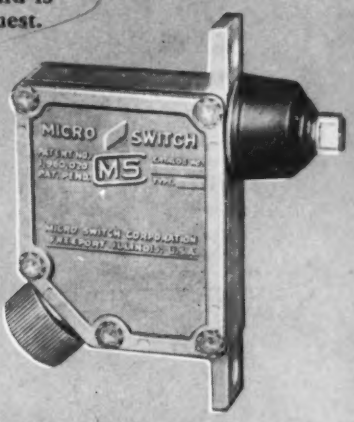
MICRO precision switches are available in a complete line with a wide range of shapes, sizes and actuators, all with high electrical capacity. All have the DEPENDABILITY so necessary for aircraft use.

MICRO engineers have valuable experience in the application of MICRO precision switches to meet many switch problems. They, in many cases where volume warrants, can change switch characteristics so that you have a "tailor made" switch for your specific use. This engineering aid is available upon request.



MICRO LMR switch has a die cast aluminum housing with mounting holes for four position mounting on either face. Rotary lever arm actuator is adjustable through 360°. Total travel of roller arm is 90° in either direction. AN number 3233.

MICRO die cast enclosed switch is compact. It combines ruggedness with light weight and has high electrical capacity. It is used on military and commercial aircraft.



MICRO Type "HN" switches provide a light-weight, compact, high capacity electrical switch with long life expectancy. "HN" housings are light weight, die-cast aluminum.

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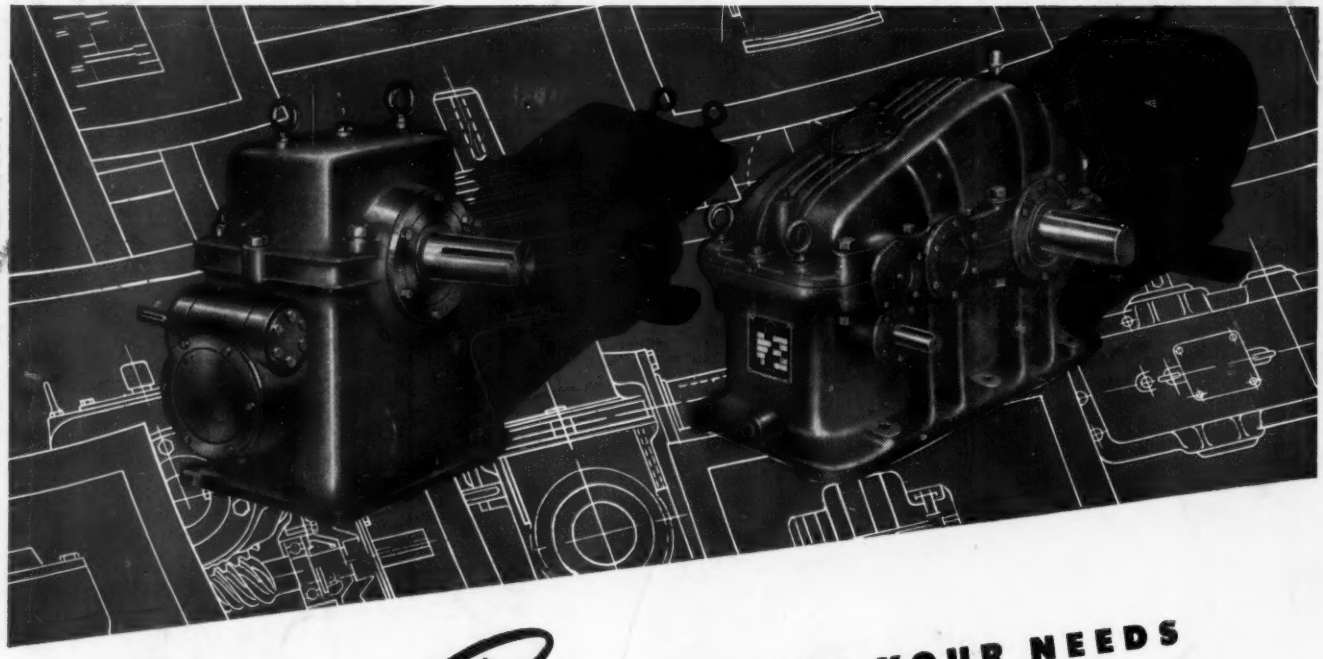

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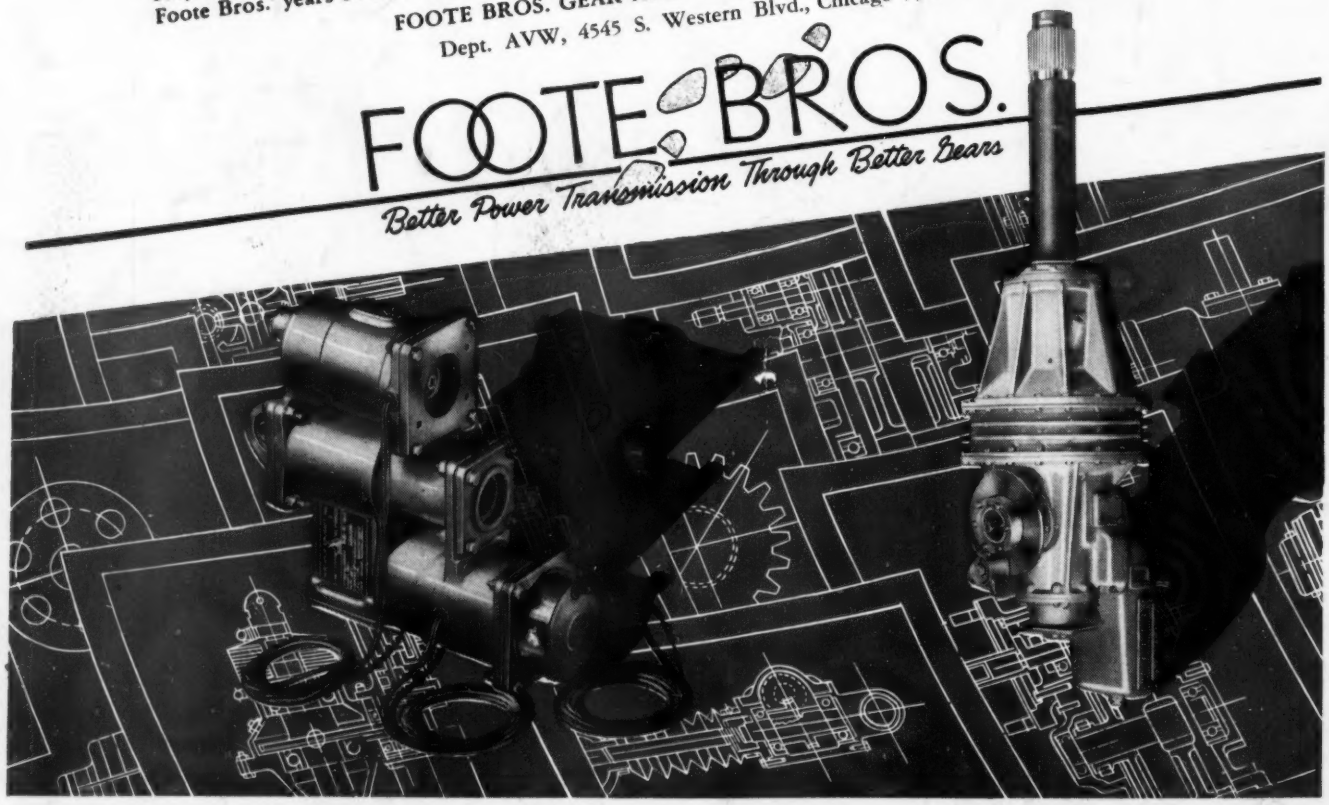
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